VOLUME LIV NUMBER FOUR

THE NATIONAL GEOGRAPHIC MAGAZINE

OCTOBER, 1928

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TO carry out the purposes for which it was founded forty years ago the National Geographic Society publishes this Magazine. All receipts are invested in the Magazine itself or expended directly to promote geographic knowledge.

ARTICLES and photographs are desired. For material which the Magazine can use, generous remuneration is made. Contributions should be accompanied by an addressed return envelope and postage.

IMMEDIATELY after the terrific eruption of the world's largest crater, Mt. Katmai, in Alaska, a National Geographic Society expedition was sent to make observations of this remarkable phenomenon. Four expeditions have followed and the extraordinary scientific data resulting given to the world. In this vicinity an eighth wonder of the world was discovered and explored—"The Valley of Ten Thousand Smokes," a vast area of steaming, spouting fissures. As a result of The Society's discoveries this area has been created a National Monument by proclamation of the President of the United States.

AT an expense of over $50,000 The Society sent a notable series of expeditions into Peru to investigate the traces of the Inca race. Their discoveries form a large share of our knowledge of a civilization waning when Pizarro first set foot in Peru.

THE Society also had the honor of subscribing a substantial sum to the expedition of Admiral Peary, who discovered the North Pole.

NOT long ago The Society granted $25,000, and in addition $75,000 was given by individual members to the Government when the congressional appropriation for the purpose was insufficient, and the finest of the giant sequoia trees of California were thereby saved for the American people.

THE Society is conducting extensive explorations and excavations in northwestern New Mexico, which was one of the most densely populated areas in North America before Columbus came, a region where prehistoric peoples lived in vast communal dwellings and whose customs, ceremonies, and name have been engulfed in an oblivion.

TO further the important study of solar radiation in relation to long-range weather forecastings, The Society has appropriated $60,000 to enable the Smithsonian Institution to establish a station for four years on Mt. Brukkaros, in Southwest Africa.

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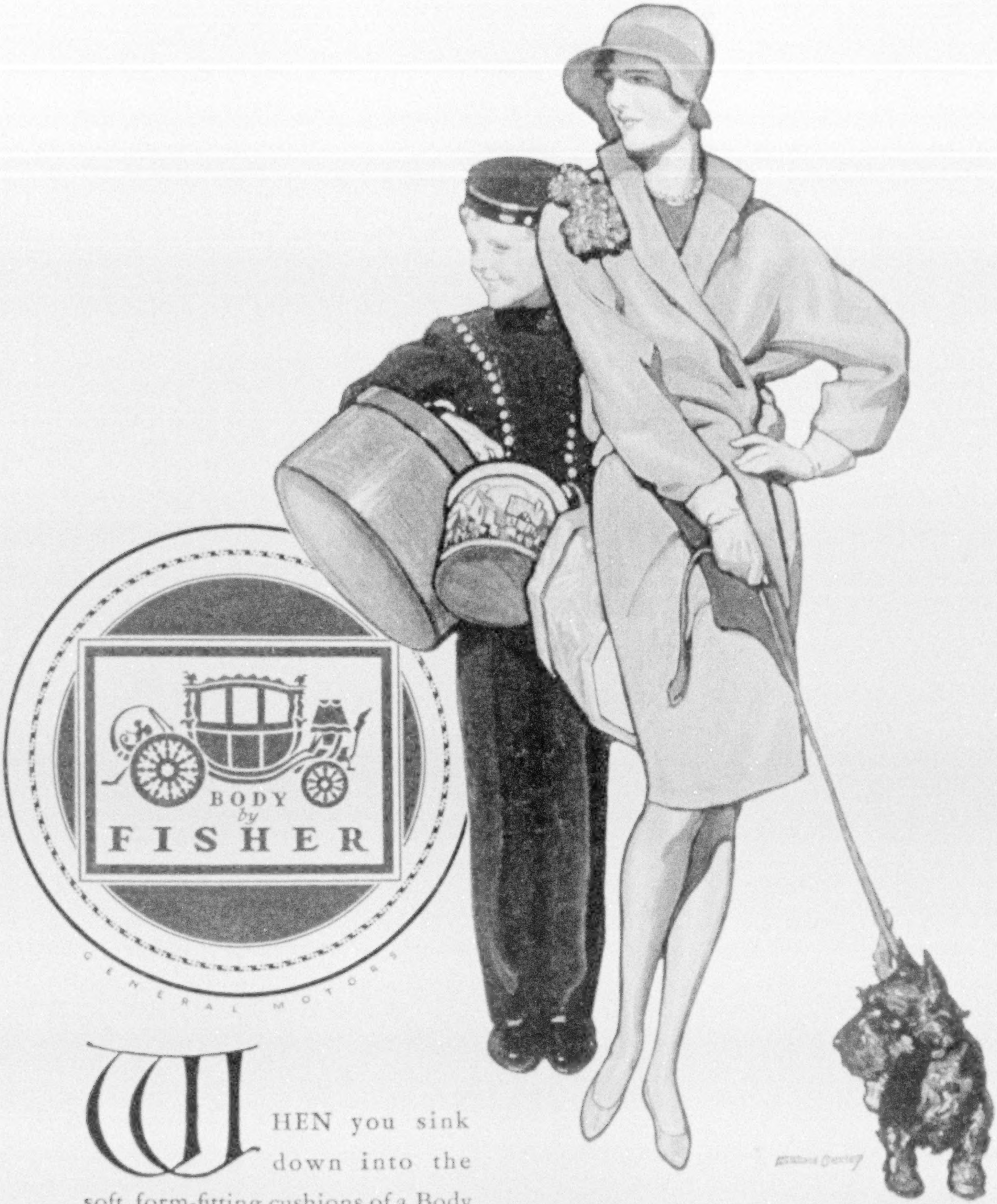

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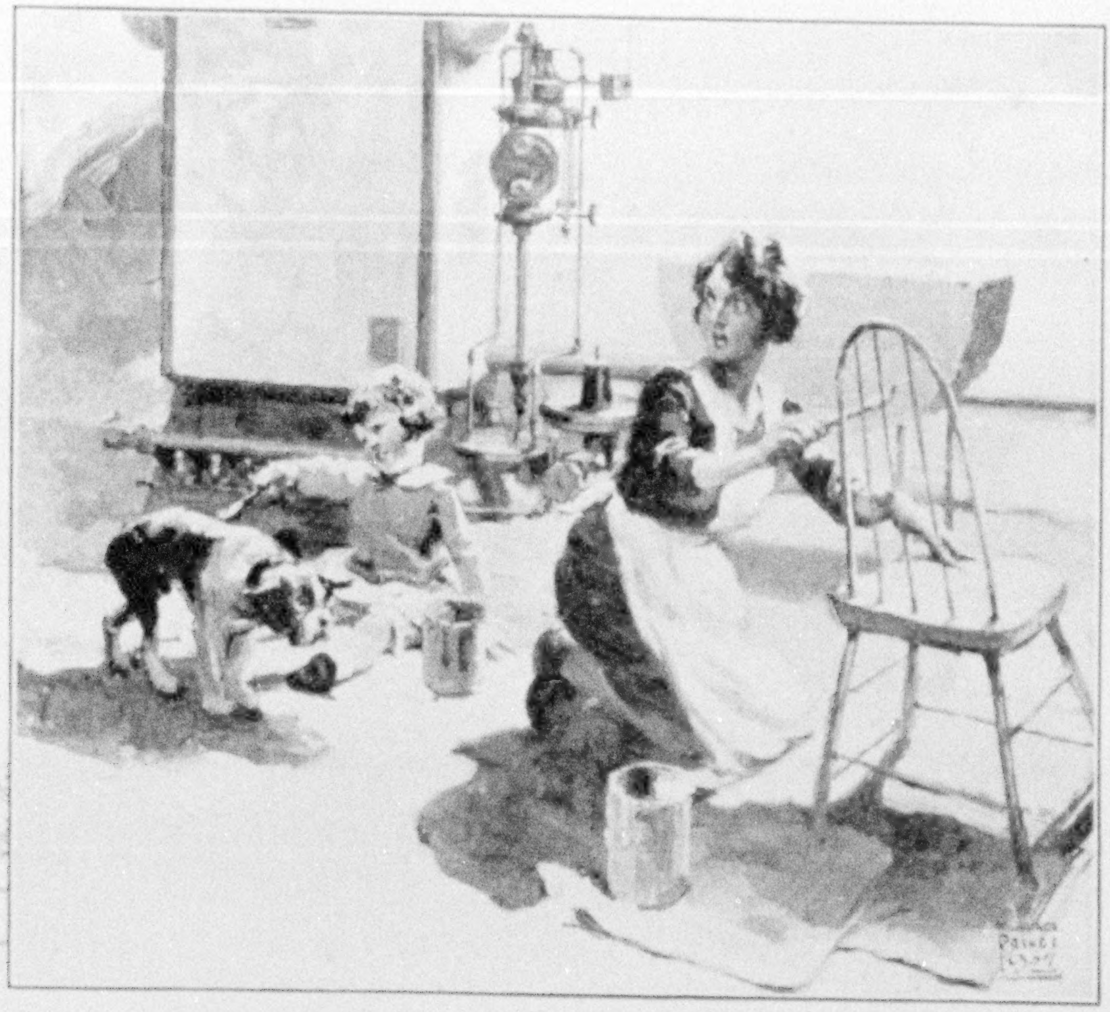

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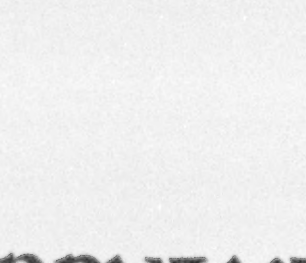

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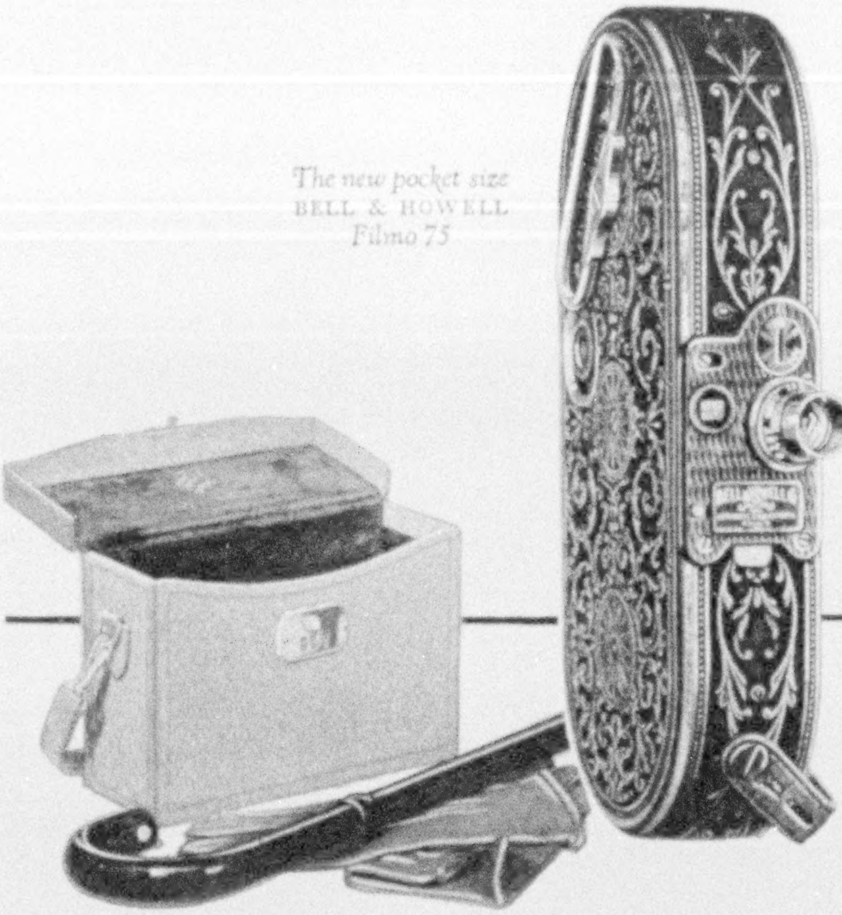

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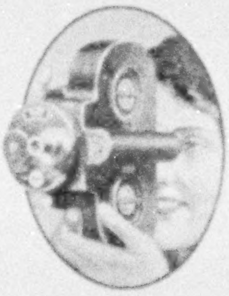
Filmo 75 is excelled in performance only by Filmo 70, shown in center of page. Filmo 70 is the Bell & Howell automatic camera which has been standard with amateur movie makers all over the world for over five years. Price, with case, $180.



Filmo 70

In the regular Filmo 70 design you may choose cameras allowing speeds of 8 and 16, 16 and 32, 12, 16, and 24, or 128 exposures per second—the higher speeds for making s-l-o-w movies. The finest amateur movie camera available at any price. Mail coupon for full description.

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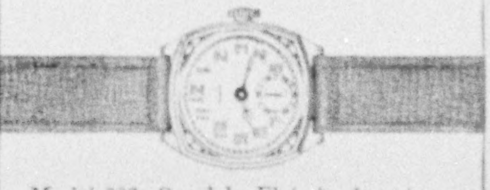

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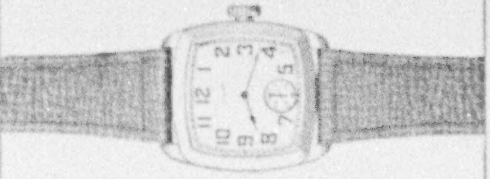

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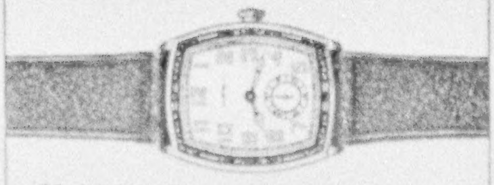

Model 300. White or green gold filled case guaranteed by Elgin. With luminous dial and hands, $27.50. With luminous hands and dot dial . . . . $26.00.
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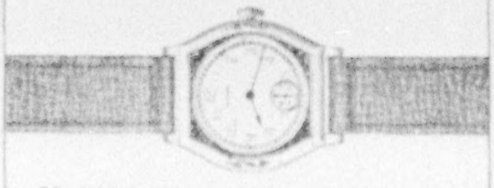

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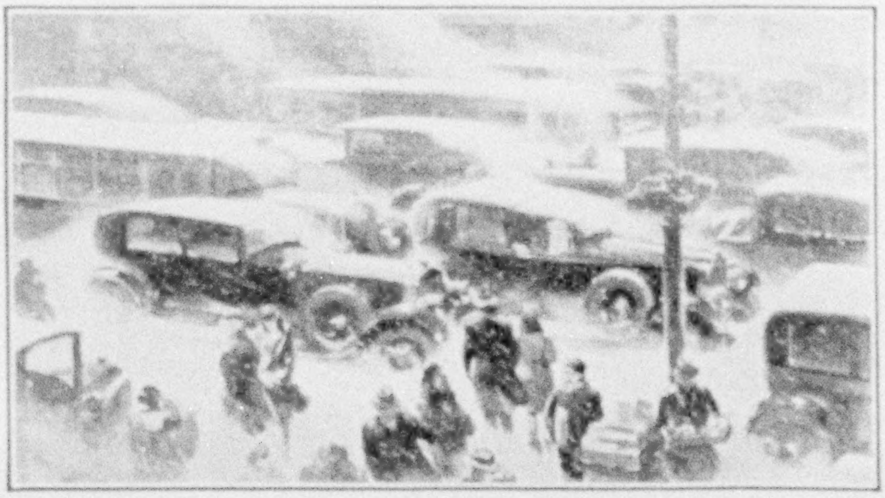

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1 Gives complete protection
2 Does not boil away
3 Positively will not damage cooling system
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6 Non-inflammable
7 Odorless
8 Does not become viscous at low temperatures; will not decompose at high temperatures
9 Never deteriorates—economical to use

Winter is just around the corner, waiting with freezing weather to catch the unwary motorist who delays about protecting his car or who uses an unreliable anti-freeze. With one supply of Eveready Prestone you can safeguard your car *now* and be certain of security and peace-of-mind, no matter when cold weather begins or how long it lasts.

No amount of warm-weather driving in any way affects this perfect anti-freeze. You need not be concerned about evaporation, loss of strength or deterioration because Eveready Prestone is as harmless as water, and one supply lasts indefinitely. It is unaffected by extreme changes in temperature. It is guaranteed, without qualification, by National Carbon Company, Inc.

Thousands of motorists used Eveready Prestone last winter under every test of winter driving and found it the perfect answer to the anti-freeze problem. Truck and bus fleet operators and automobile manufacturers endorse it. Eveready Prestone is used to protect the costly engines of dirigibles from the frigid temperatures encountered in cold-weather flying.

Protect your car now with the surest, safest and most permanent safeguard against cold-weather driving dangers. Eveready Prestone, *sold as a pure, undiluted product,* is the most economical anti-freeze you can buy. It costs more initially, but less is required and one supply is all you need.

Eveready Prestone does not contain any alcohol or glycerine

Each Eveready Prestone can is sealed with a special safety cap that protects the purchaser against the possibility of substitution or adulteration. Look for this cap.

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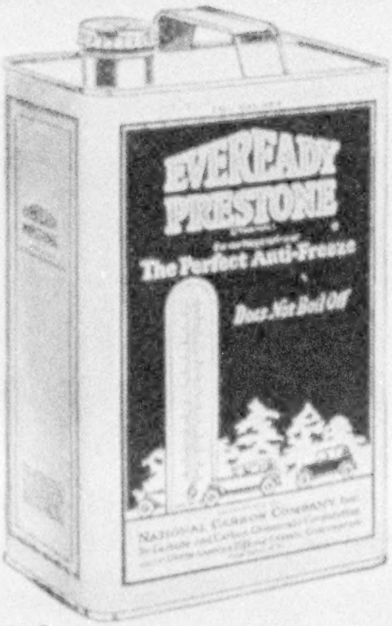

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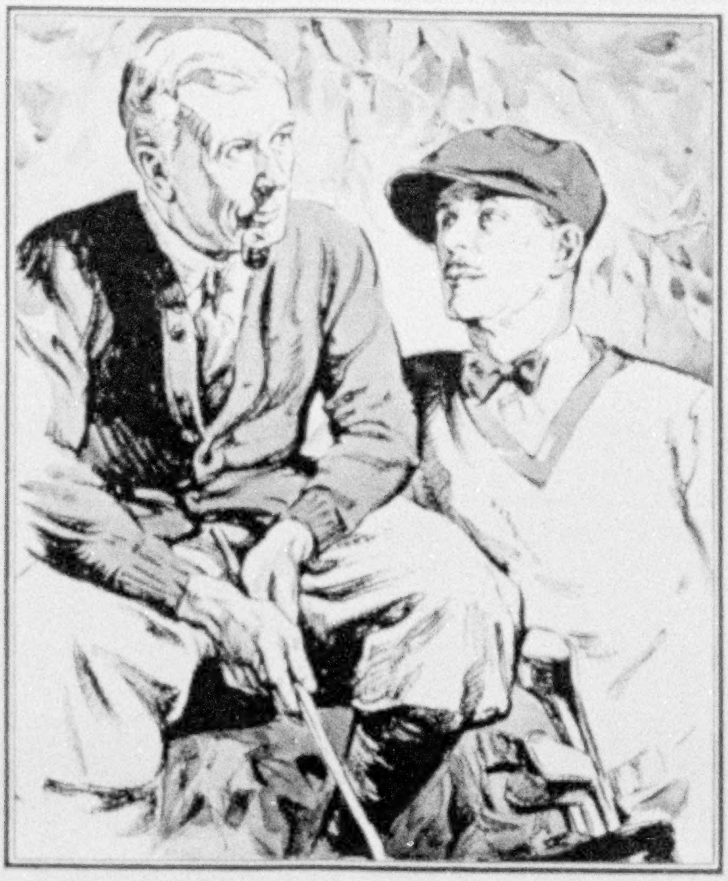
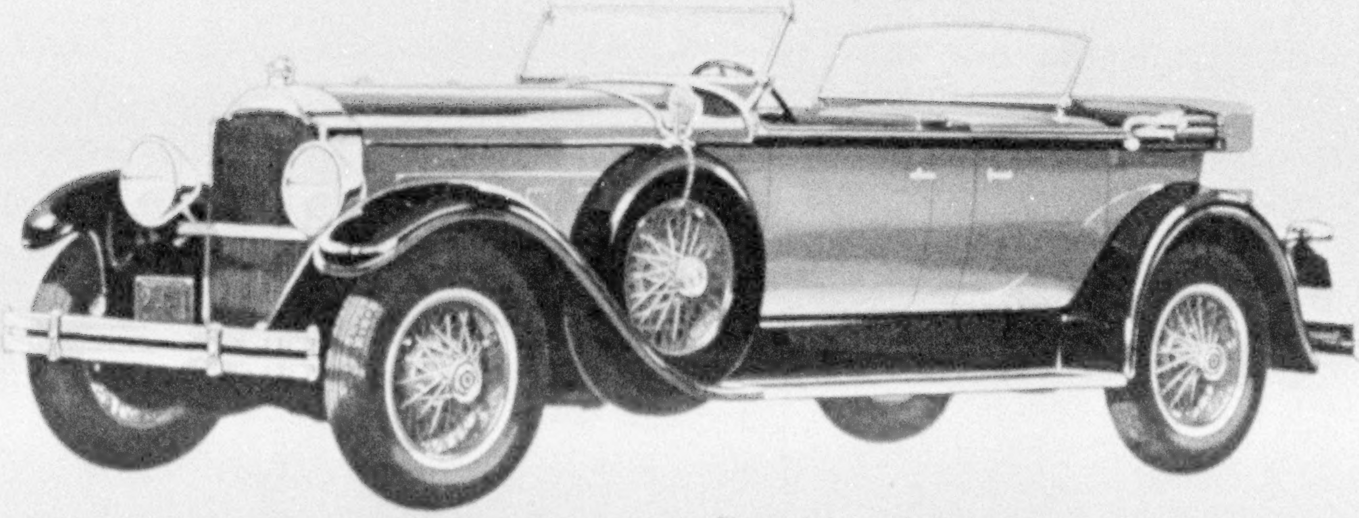
The Perfect Anti-Freeze

PACKARD

ASK
THE MAN
WHO OWNS
ONE



. . I suppose I have owned every really fine car built in this country. And I even imported a couple. You know I drive myself and always get a lot of real pleasure out of my cars—not just transportation. A fine car appeals to me as much as a good horse. I quit experimenting three years ago and went back to my first love. That car has everything I want or expect in the way of looks and performance. You'll always be glad you got a Packard. I wouldn't drive anything else.



Illustrated above is the Packard Eight 645
Five-Passenger Phaeton

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GREATER ECONOMY . . . GREATER CONVENIENCE
QUIET FOR A LIFETIME

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But the New Frigidaire's conveniences were designed by domestic science experts . . . for women.

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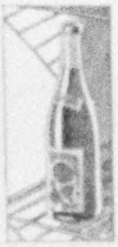
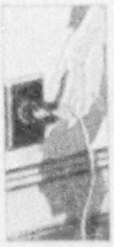
The beautiful New Frigidaire cabinets represent the best efforts of cabinet makers and authorities on domestic science and interior decoration. The New Frigidaire is in every way an automatic refrigerator for the modern kitchen. Beautiful, convenient, it not only safeguards health and provides a plentiful supply of full-size ice cubes, but it saves time, work and money. *Let Frigidaire pay for itself as you pay for it.* Find out about the surprisingly low prices of the New Frigidaire.

If you buy the New Frigidaire on a deferred payment plan, as most people do, the first payment can be so small and General Motors terms so liberal, that the New Frigidaire will actually pay for itself as you pay for it.

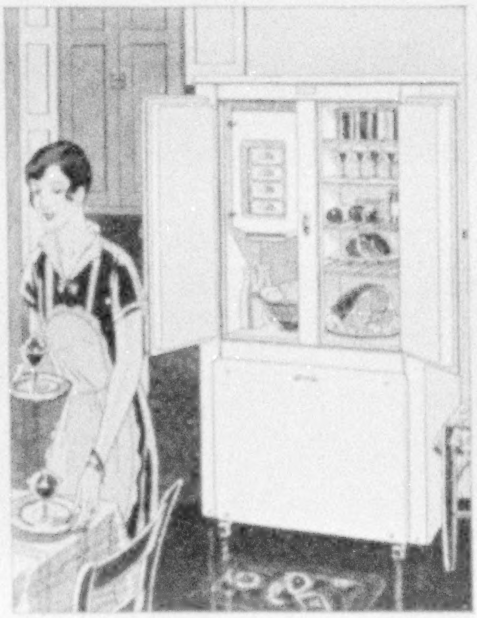
The New Frigidaire is now on display in your distributor's show rooms. See it today. Frigidaire Corporation, Subsidiary of General Motors Corporation, Dayton.



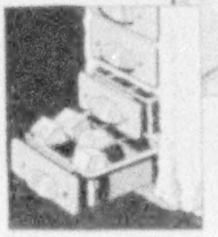
The shelves of this New Frigidaire are spaced to provide room for tall receptacles.



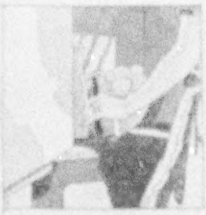
The New Frigidaire is literally an automatic refrigerator. The new model V-5, can be plugged into any electrical outlet.



The New Frigidaire, incredibly quiet and powerful, has a wide variety of models of every size, capacity and price. This beautiful model D-9, like every other Frigidaire, is built for convenience.



The patented self-sealing ice trays of the New Frigidaire freeze ice cubes quickly.



Note that the shelves of this New Frigidaire cabinet are all at convenient height. No stooping is necessary.

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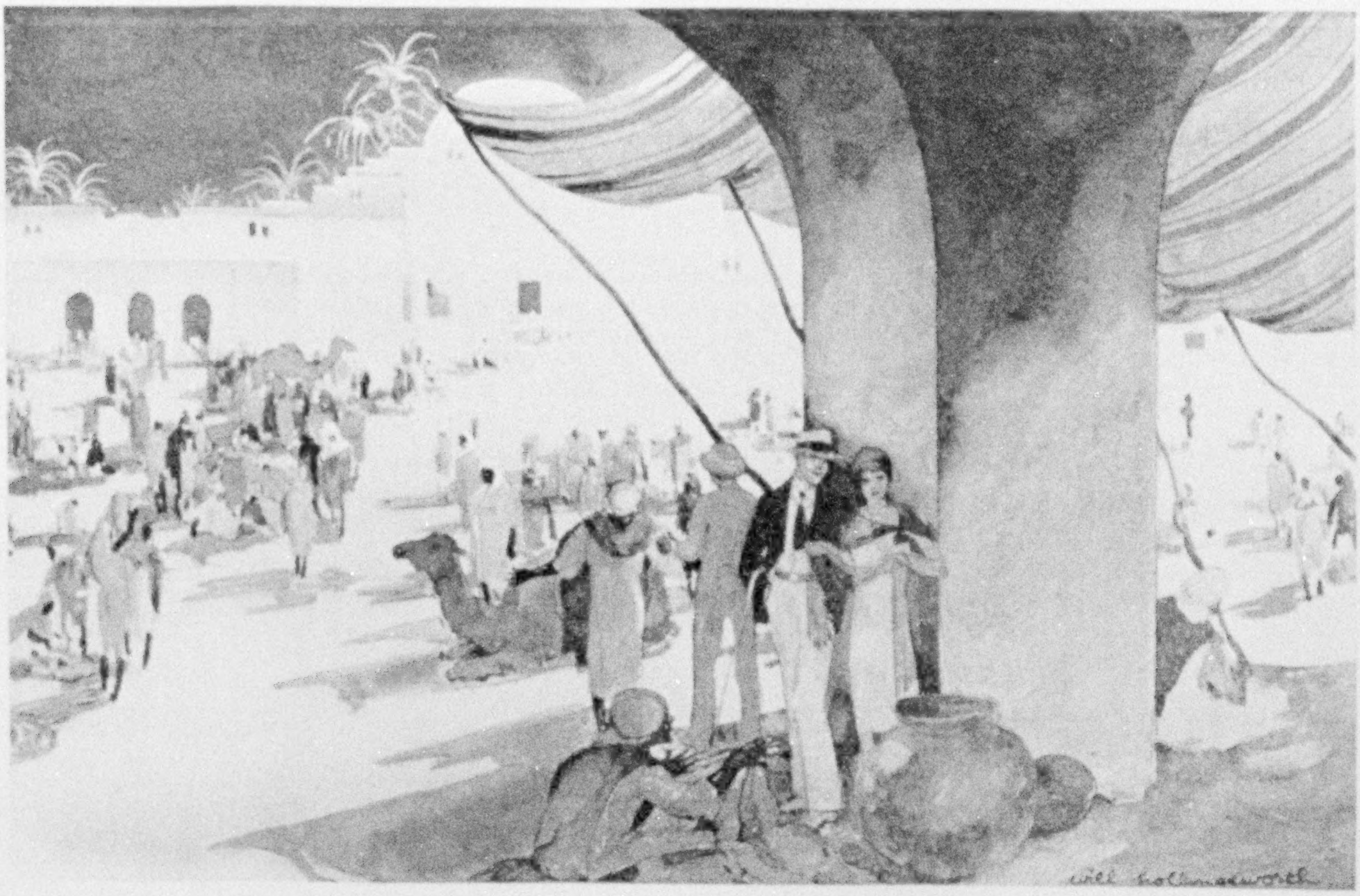
and the beckoning horizons



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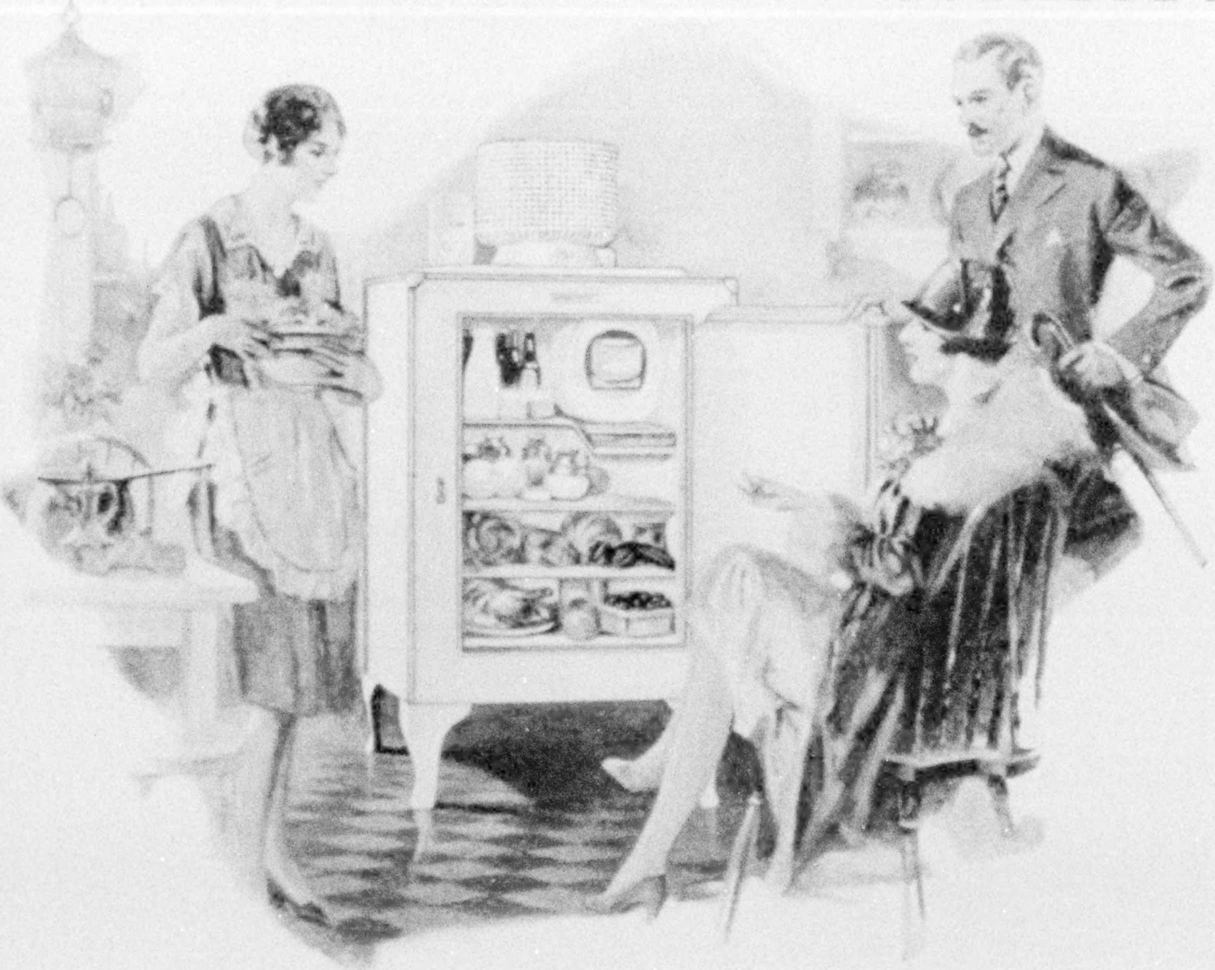

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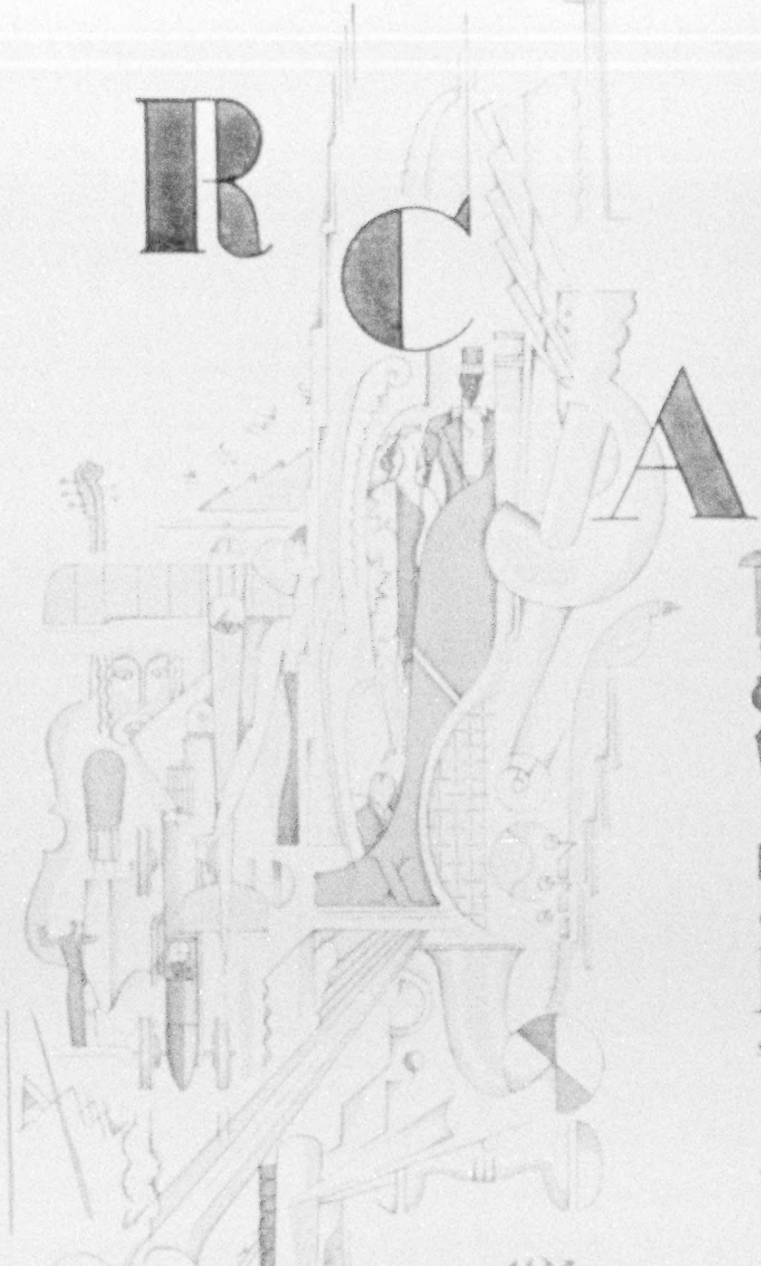

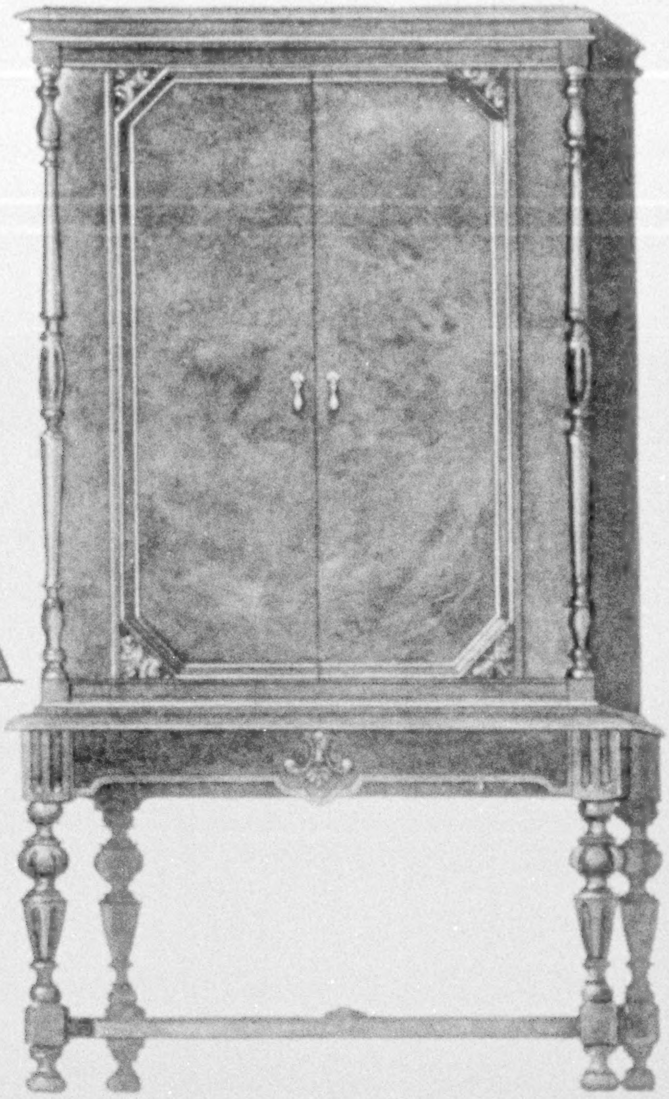

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103

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60

RCA RADIOLA 60

Beautifully designed table model of new Radiola Super-Heterodyne with A.C. electric operation. Single control with illuminated dial. Two-toned walnut veneer. An instrument of wonderful musical range and tone fidelity. $175 (less Radiotrons).

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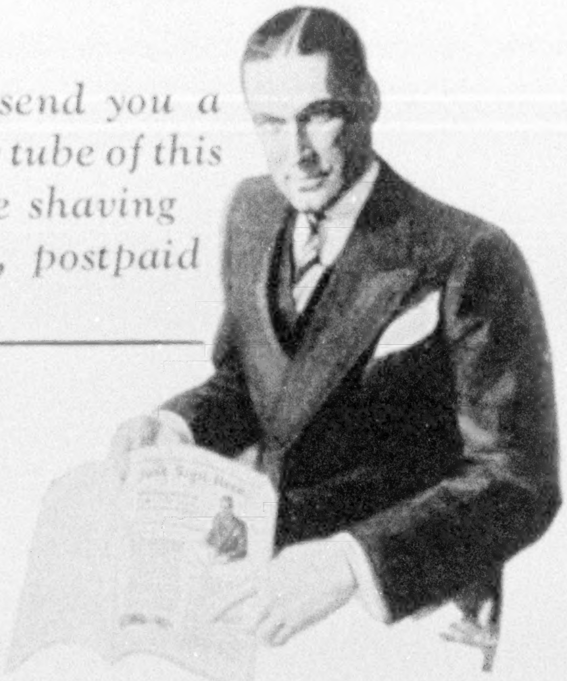

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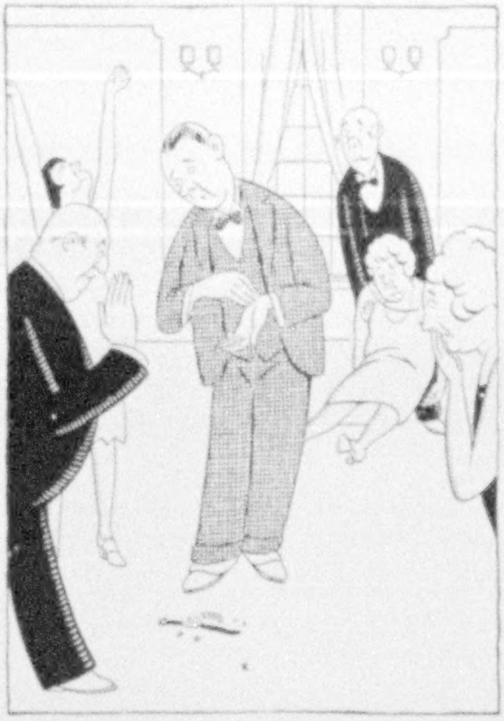

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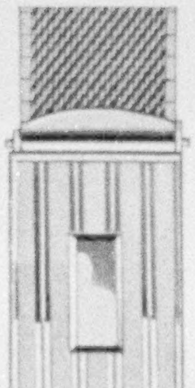

DON'T accuse Junior of culpable negligence when the graduation gift tail-spins to ruin. No wrist watch is safe that trusts its life to the ordinary buckle-strap. That's why Krementz Wrist Watch Bands are taking so big. *There is no buckle!* Instead there is a trim metal casing that holds three expanding links. Opened, the strap forms a loop that slips on or off—over the hand—or up on the forearm when washing the hands. Thus the horror of dropping the treasured time-piece is gone forever.

In Krementz Quality Rolled Gold Plate, Krementz Wrist Watch Bands are offered fitted with leather at $7.50; with flexible Milanaise Mesh, $12.50 and $15.00. Your jeweler also has them in solid 14 kt. or 18 kt. white, yellow or green gold and in solid platinum. Write us for name of nearest jeweler.

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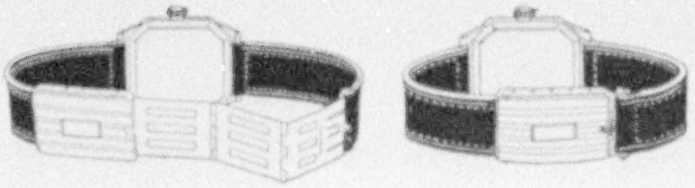

When completely expanded there is ample allowance for free passage over hand or up on forearm.

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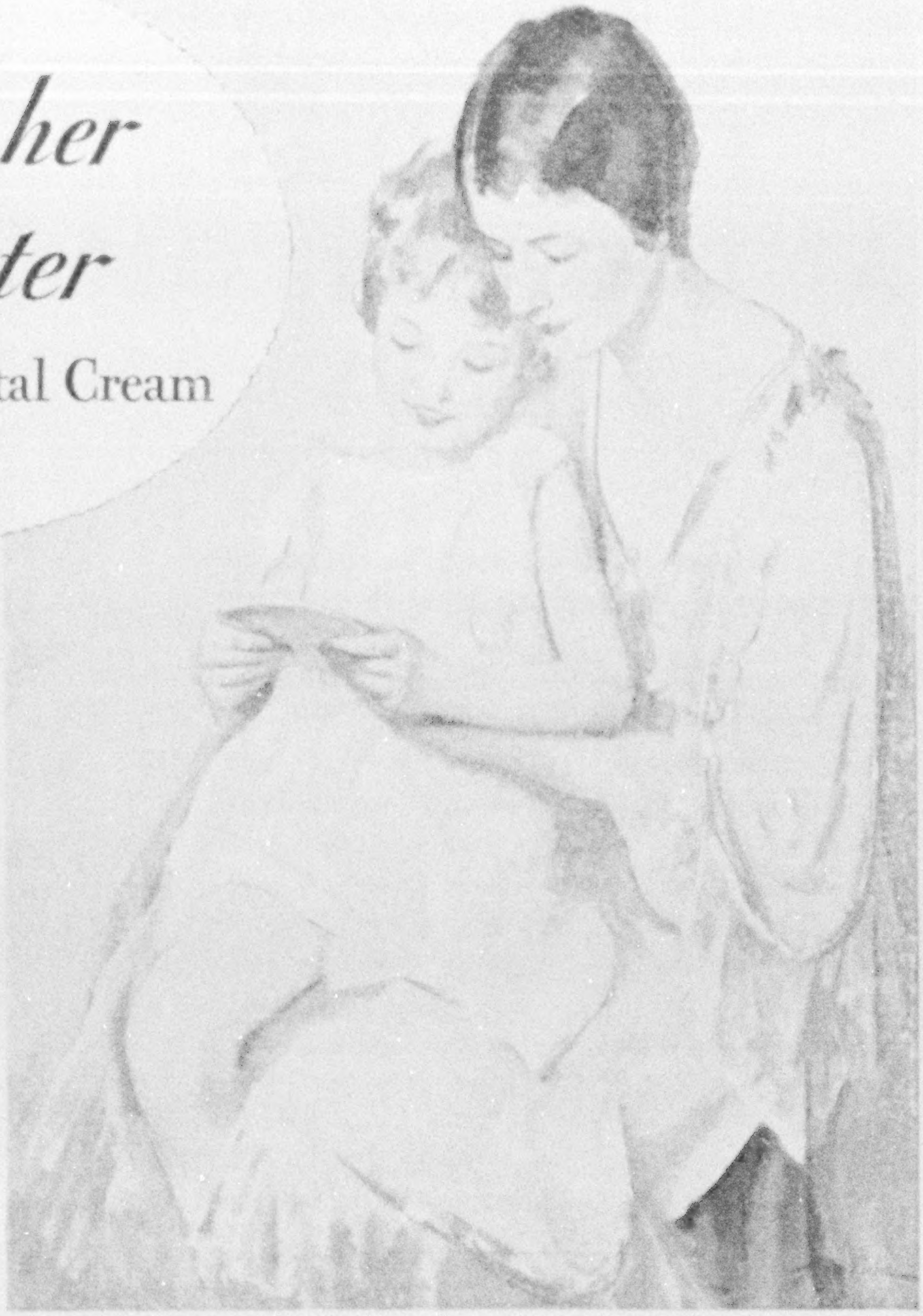

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BACK in 1908, exactly twenty years ago, Mrs. I. E. Brooks bought her first tube of Colgate's.

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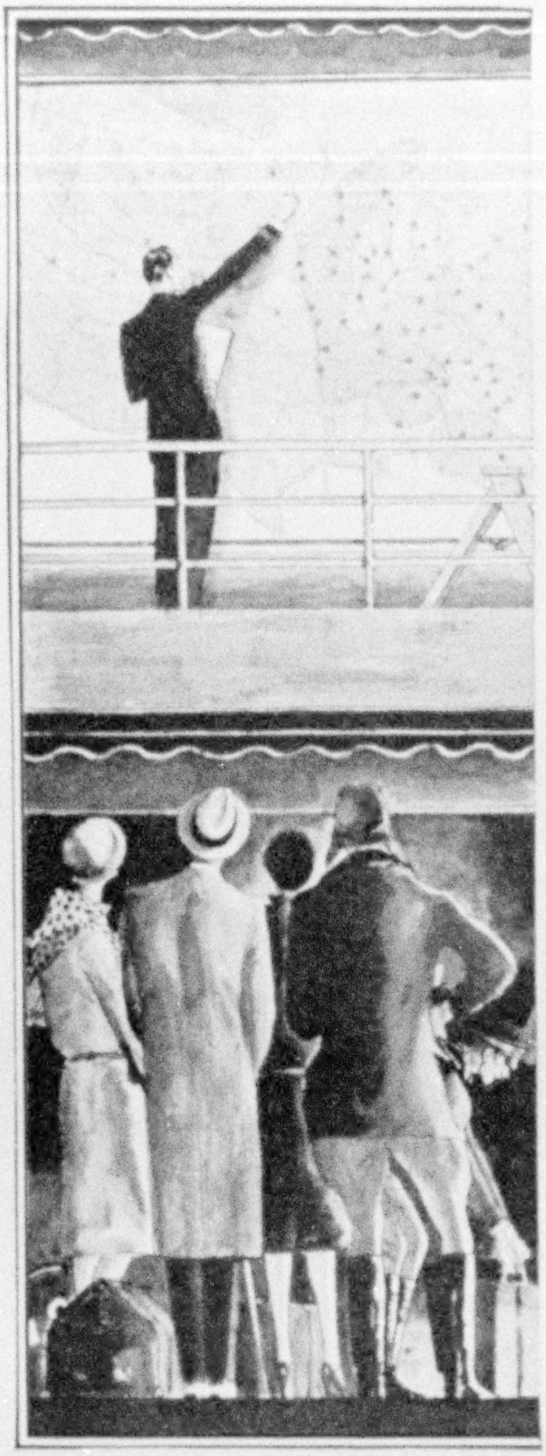


WHILE Chambers of Commerce labor earnestly for deeper river channels to bring them closer to the seaboard, and political wars are waged bitterly over preferential railroad rates that may jeopardize the markets of inland and isolated towns, *a thousand dry-land ports have suddenly appeared with wharves open to business from all the world!*

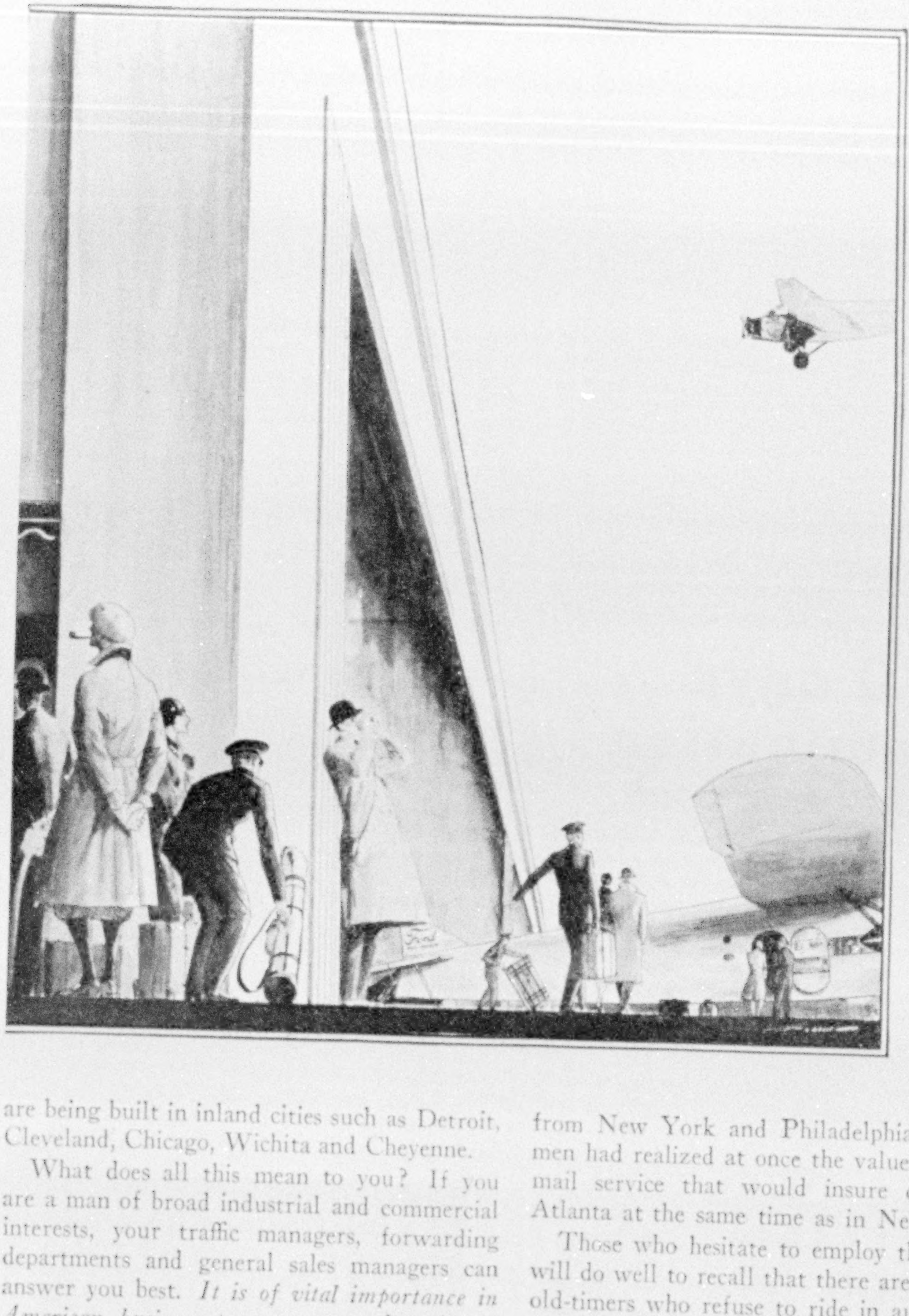
A thousand communities have at least sensed the opportunity for a place of importance upon the new map being drawn of channels and harbors that open to the sky. It is significant that upon these charts many great coastal harbors are conspicuously absent. For the ships of the air, following laws that have always governed the development of permanent transportation systems, *are being drawn only to the most efficient terminals.*

At whatever hour of the day or night this message reaches your eyes, somewhere above the United States planes are carrying commercial cargo at a hundred miles an hour to scheduled destinations. *These planes must have suitable landing fields.*

In the early days of automobiles, the stigma "bad roads" stuck to communities that failed to grasp the need for better roads to smooth the way for the new machine. "Bad harbor facilities" have ruined many a promising seaport town. "Inefficient railway service" has hampered the development of cities that might have become important commercial centers. And now that a new and revolutionary leap forward is being taken in transportation, the towns and cities of today are going to be powerfully influenced by the degree of attention they pay to air-ports.

There are still less than 250 municipal airports worthy of the name. There are almost as many commercial and private ports. There are somewhat less than a hundred maintained by the Army and Navy. *More than* 3000 *"phantom ports," improperly equipped, are of use only as emergency landing fields.*

Few American air-ports can yet compare to the European "world-ports" of Croydon, LeBourget, Tempelhof. Great cities like New York are awakening to the full significance of this; though it still takes as long to get from a New York flying-field to the heart of the city as it does to fly from New York to Philadelphia. The really notable American air-ports



are being built in inland cities such as Detroit, Cleveland, Chicago, Wichita and Cheyenne.

What does all this mean to you? If you are a man of broad industrial and commercial interests, your traffic managers, forwarding departments and general sales managers can answer you best. *It is of vital importance in American business to promote and maintain efficient municipal air-ports!*

When the New York-Atlanta Air Mail was inaugurated in May, instead of one, two ships were required to take 32,000 pieces of mail from New York and Philadelphia. Business men had realized at once the value of a night mail service that would insure delivery in Atlanta at the same time as in New York.

Those who hesitate to employ the airplane will do well to recall that there are still many old-timers who refuse to ride in automobiles!

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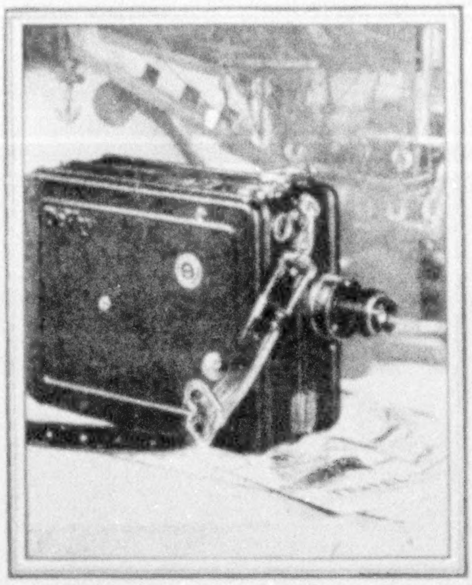

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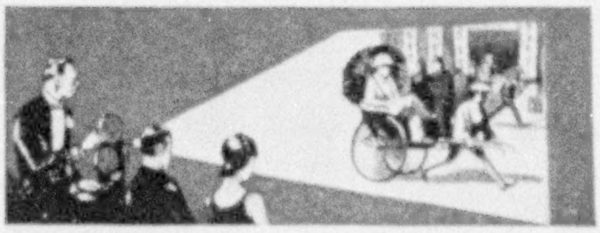

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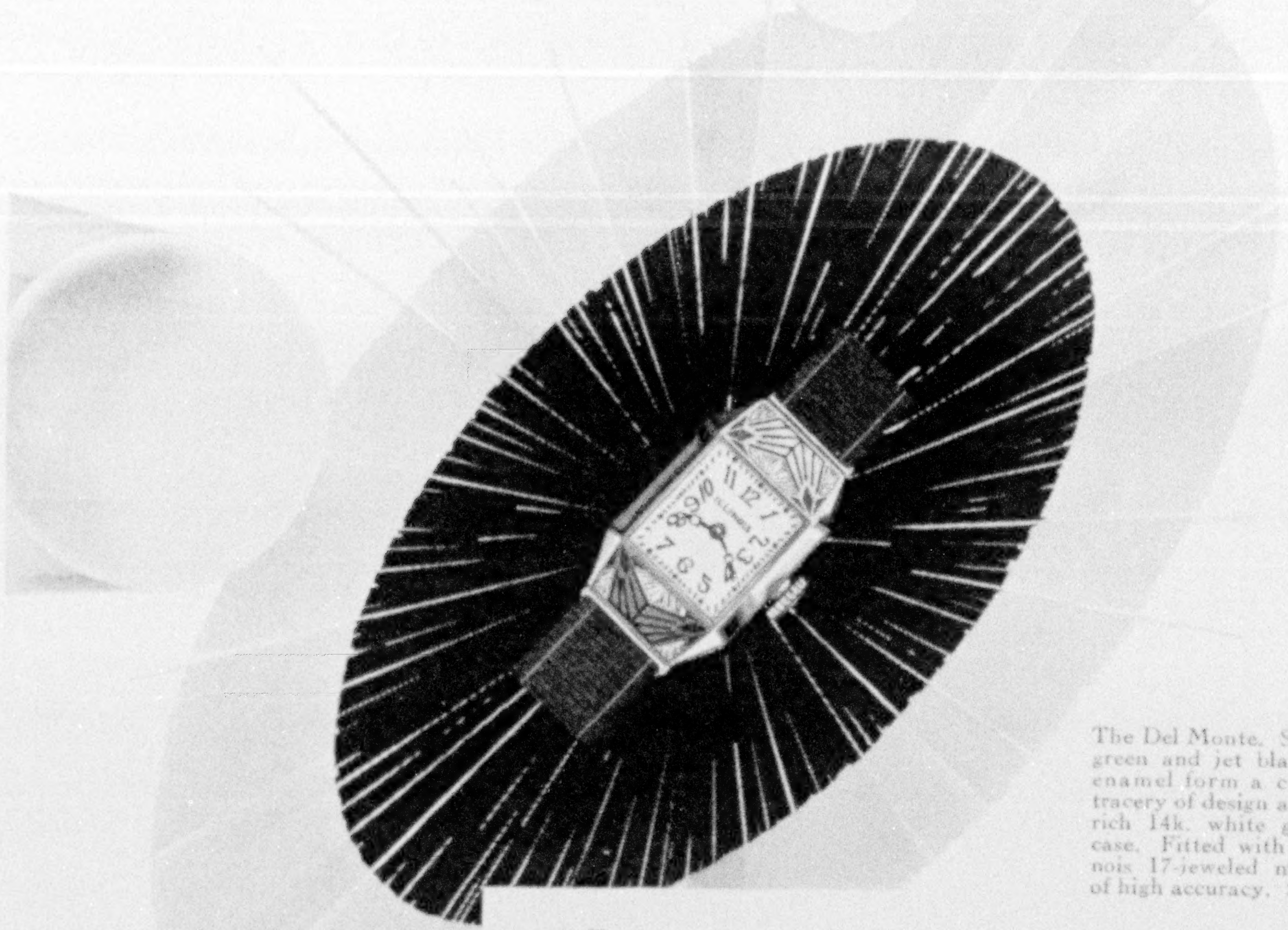

The Del Monte. Soft, light green and jet black inlaid enamel form a charming tracery of design against its rich 14k. white gold-filled case. Fitted with fine Illinois 17-jeweled movement of high accuracy. $55.

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An exceptionally small, fine watch movement—a jewel of a watch in a setting of enduring beauty and color—that is Illinois' brilliant new creation for the women of America.

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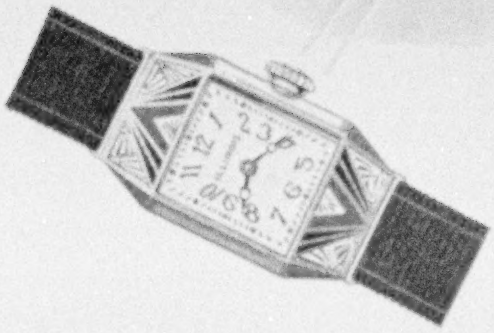
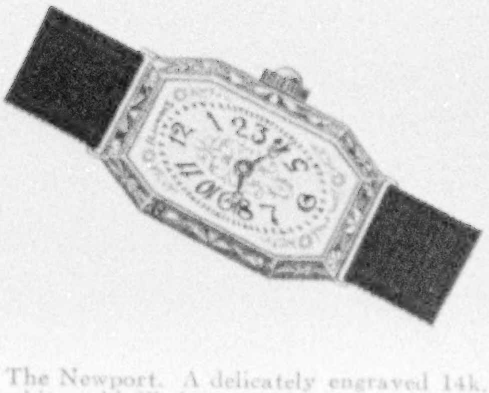
See the new Illinois, in all its variety of selection, at your jeweler's. Only a few designs can be shown here. Put it on your wrist and recognize for yourself its beauty and style. Then ask the jeweler how good a watch it is. He has known Illinois Watches ever since he has been in business—and he knows.



The Miami. The happy combination of warm red and black enamel inlaid in its 14k. white gold-filled case, makes this model a favorite. Doubly so because of the timekeeping qualities of its fine Illinois 17-jeweled movement. $55.



The Newport. A delicately engraved 14k. white gold-filled case with octagonal opening for its beautiful silvered dial, features this attractive model. And its fine Illinois 17-jeweled movement insures dependable timekeeping. $50.

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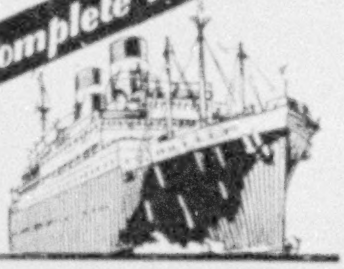

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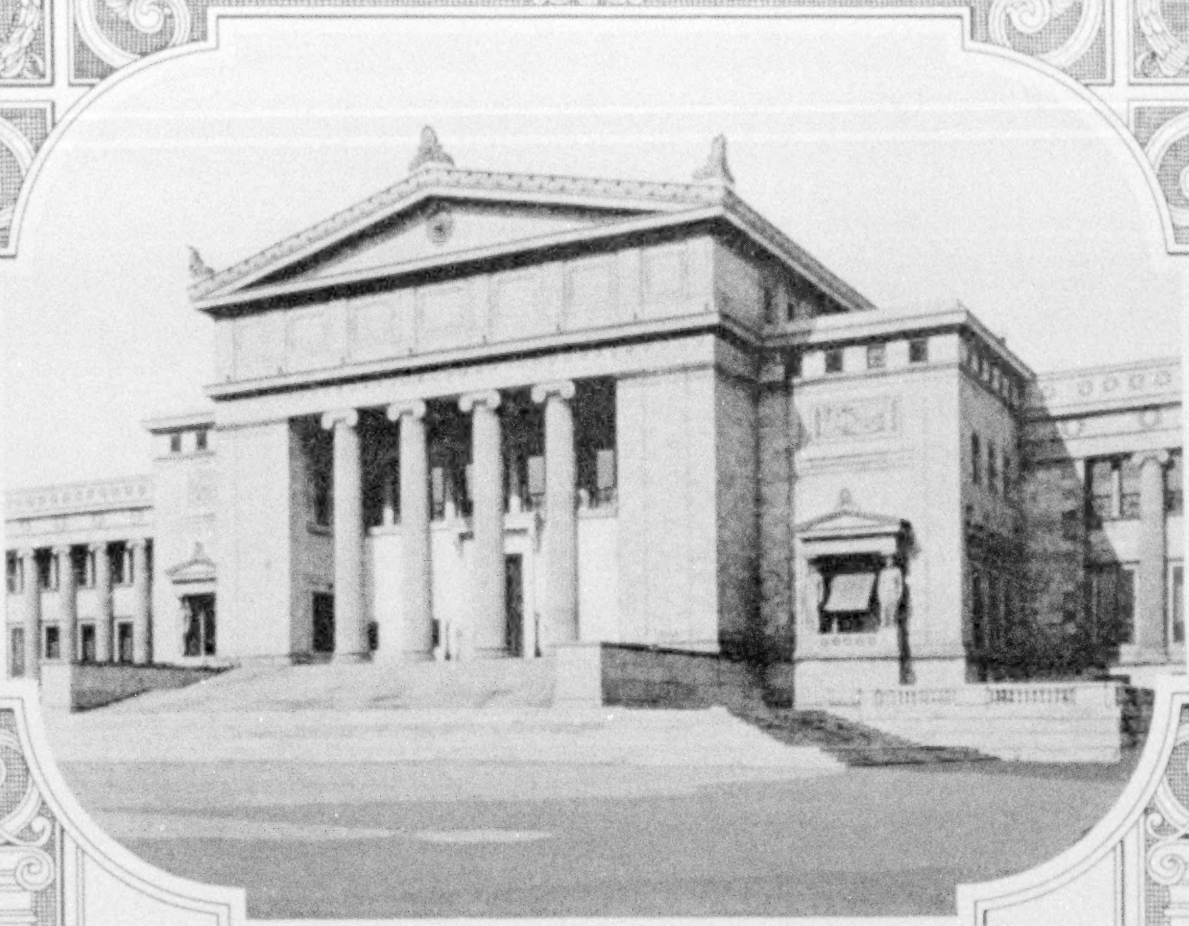

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but for LIGHT, I use a flashlight. Particularly around the house where there's a chance of fire. I wouldn't use a lighted match among clothes in a dark closet or around the dry things in an attic, for anything. Not even if it *was* a good way to find things, which, you know, it isn't. I use my flashlight, an Eveready. Touch the switch and there's a big, bright circle of light that the darkest corner can't escape. Better light and SAFER.

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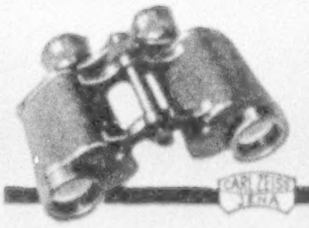

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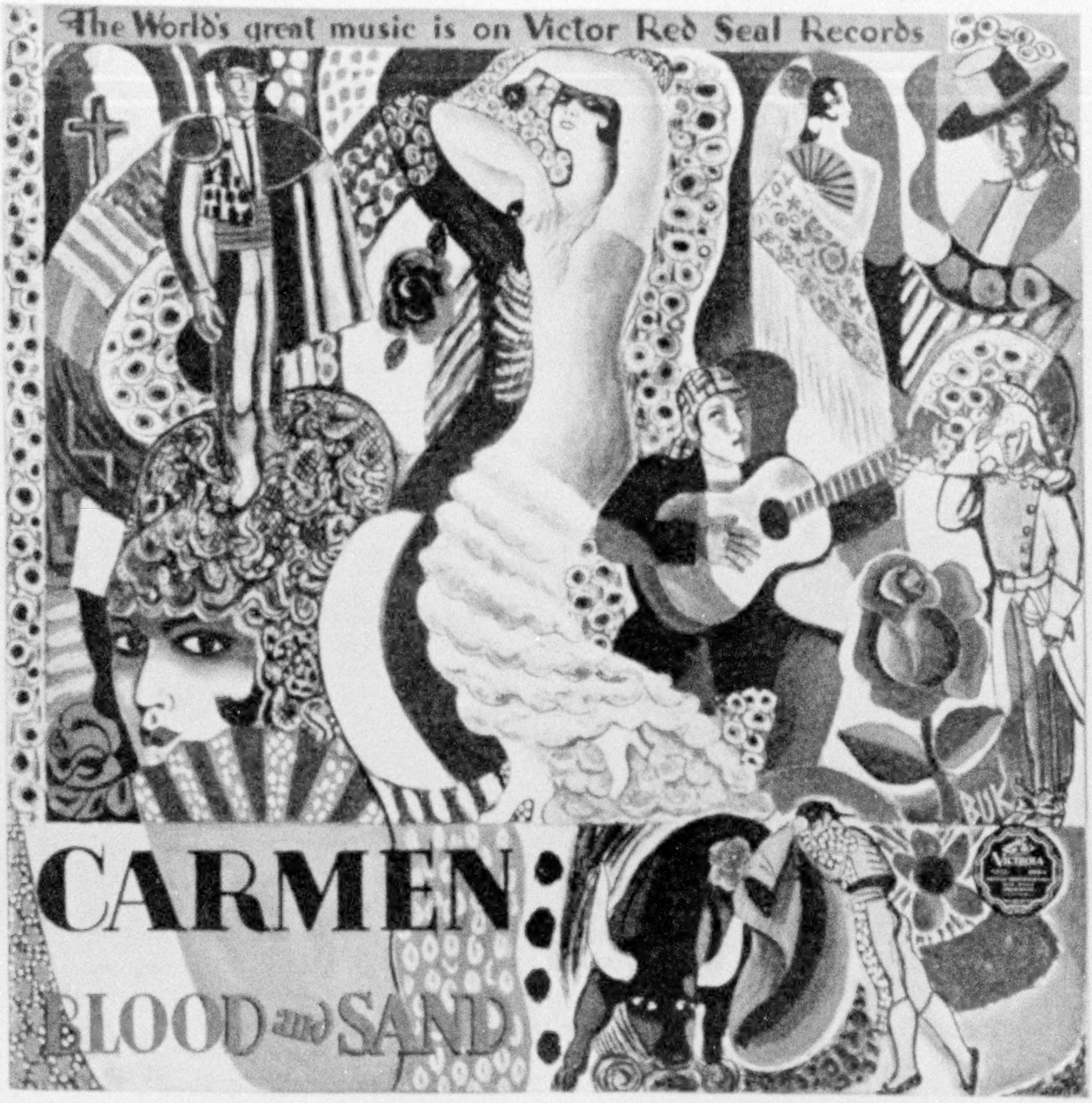
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CARMEN:
BLOOD and SAND
BUK

ALTHOUGH "Carmen" is indisputably one of the three or four most popular operas of all time, its *première* at the Opera Comique in 1875 was a failure. Conservative critics accused it of Wagnerianism. Victorian prudery found it improper. Political intrigue dictated its withdrawal, and three months later Bizet died—a broken and a heart-sick man. But music such as this—so vivid, so passionate and abrim with life—cannot long lie hid. In 1878 the work was produced in London with overwhelming success, and since then it has continued to hold the stage wherever there is opera. The above interpretative painting is by Eduard Buk Ulreich.

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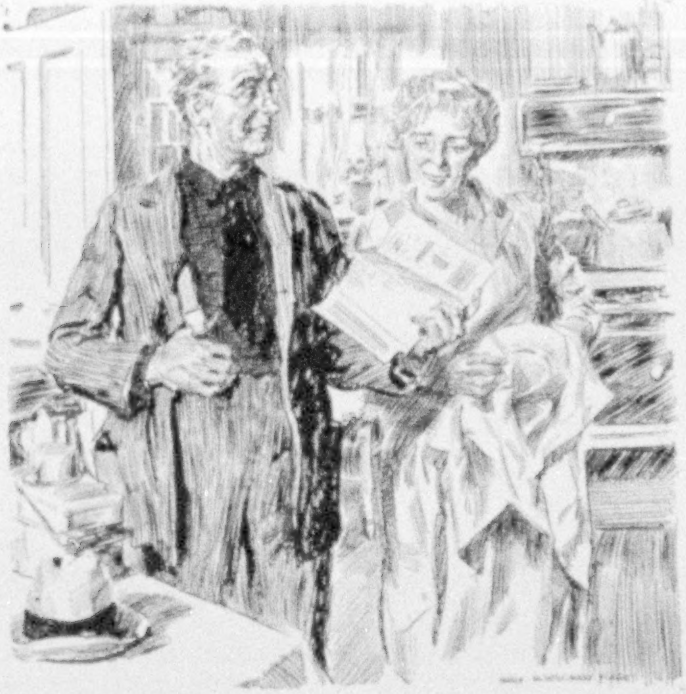

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WHEN you hear a man refer to his employer as "the boss," or "the chief," study the expression of the speaker's face. If the corners of his mouth turn up a bit and a happier expression comes into his eyes, you may be sure that his boss is kind and considerate. In some businesses it is the boss's privilege and personal pleasure to know by sight, and usually by name or nickname, everyone who works for him. And some of the great bosses in America, although they do not have the satisfaction of personal acquaintance, have earned the trust and affection of thousands of workers who have never seen them.

Perhaps there are still some employers who study ways and means to squeeze pay-rolls to the limit and who consider individuals on the pay-rolls merely as money-making units. But they will be replaced, sooner or later, by bosses who have a better understanding of changing industrial conditions.

Men cannot work collectively without leadership. They expect it and want it, but it must be intelligent and above all—fair. Then follows a mutual interest in the job to be done. When you hear a man in the ranks say "*we* sold more goods last month than in any previous one" he counts himself not as an individual but part of *his* organization.

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In this way, hundreds of thousands of families have already secured protection against possible financial disaster—at low cost. There will be more next year and more the year after.

THE LIGHT THAT NEVER FAILS

The efforts of employers to provide protection for the families of their employees are bringing a new spirit of good will into industrial relations.

Ten thousand employers of labor in the United States and Canada have set up programs whereby their employees may secure insurance under most favorable terms. The necessity of medical examination is eliminated; family history becomes immaterial; so also the occupation of the individual; and cost to employees in each group is equalized.

Not only that, but when these Group Insurance programs are set up, employees are able to get their insurance at prices much below those available to individuals in the open market.

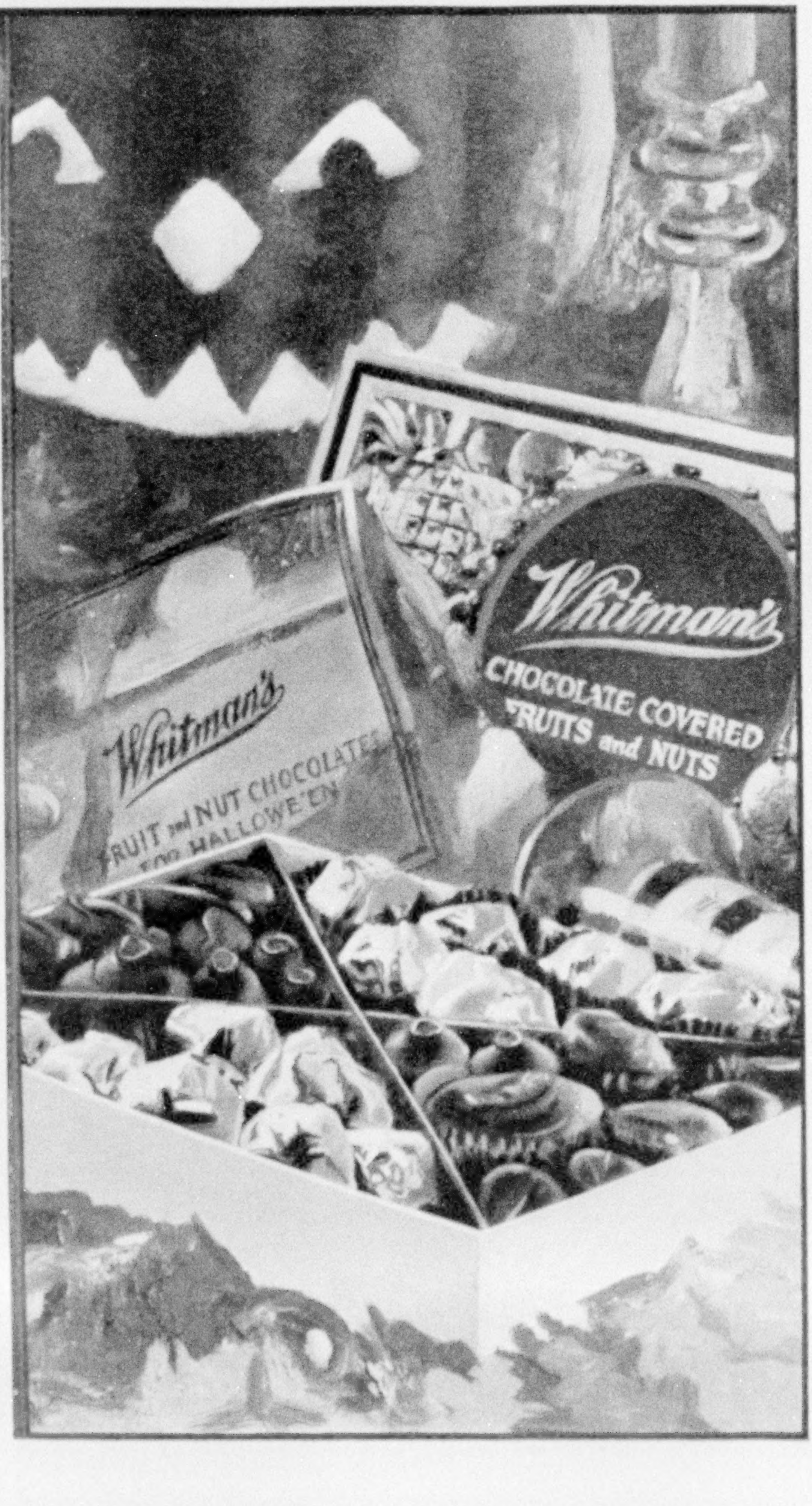
Employers and employees interested in Group protection plans are invited to send for free information on Group contracts to Metropolitan Life Insurance Company, Dept. 108-N, Madison Avenue, New York City.

HALEY FISKE, *President.*

METROPOLITAN LIFE INSURANCE COMPANY—NEW YORK

Biggest in the World, More Assets, More Policyholders, More Insurance in force, More new Insurance each year

Whitman's Fruit and Nuts . . . . a hospitable Halloween greeting


Whitman's
FRUIT and NUT CHOCOLATES FOR HALLOWE'EN
Whitman's
CHOCOLATE COVERED FRUITS and NUTS

Fruit and nuts—of course. Tradition decrees it. And what more delightful than the famous package of Whitman's Fruit and Nuts?

Delicious chocolate surrounding lucious fruits and selected nuts! What a wonderful greeting for those Hallowe'en guests who are sure to drop in.

How these crisp days awaken the candy hunger. Have candy . . . Whitman's . . . the Fruit and Nuts package ready.

It proves both your thoughtfulness and your good taste to take "her" Whitman's. Whitman's Fruit and Nuts package is doubly welcomed for the thought it carries—and for itself.

There is a selected Whitman agency near you. And every Whitman agency gets each Whitman package directly—quickly—*fresh* from us.

Stephen F. Whitman & Son, Inc.
Philadelphia New York
Chicago San Francisco

Whitman's
Chocolates

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Vol. LIV, No. 4 WASHINGTON October, 1928

THE NATIONAL GEOGRAPHIC MAGAZINE

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OUR CONQUEST OF THE PACIFIC

The Narrative of the 7,400-Mile Flight from San Francisco to Brisbane in Three Ocean Hops

By Squadron-Leader Charles E. Kingsford-Smith and

Flight-Lieut. Charles T. P. Ulm

Co-Commanders *Southern Cross* Transpacific Flight*

To fly across a sweep of 4,900 miles of ocean over which the steady drone of an airplane motor had never been heard.

To see the Fiji Islands come suddenly popping up like great brown bulges on a floor of blue.

To watch the long, gray land mass of the Australian Continent slip like a purple shadow over the steel-blue rim of the sea.

To know that we had been the first to cross the Pacific and had achieved the ambition of our lives.

How does it all feel?

Wild elation surged through us in the cockpit of the *Southern Cross* when Australia appeared below us in the pale, pearl glow of a weak midwinter sun. Now we both know how Columbus must have felt when he saw those floating tree branches drifting on the tide that hurried out into the Atlantic wastes. We can appreciate, too, the tingle of triumph that must have rippled through Captain Cook when he trained his telescope on Cape Everard for his first glimpse of Australia on that notable April morning 158 years ago.

We felt justifiable pleasure that to us had fallen the honor of having been the rediscoverers of the east coast of Australia, this time from the air. We felt, too, that we had opened up a new route of communication with our American neighbors on the other side of the Pacific.

But how was it all done?

How did the *Southern Cross* sweep down that unknown and unflown airline to Suva? What was the basis of our success?

Those three engines tore through calm and storm; through rushing walls of tropic rain; through tumbled clouds piled like gray mountain peaks; through a howling head wind and through a hushed night sown with stars. Never was there a semblance of hesitancy in their beat. Why?

To answer these queries, to explain the factors to which we owe our success, we must go back to those long months of preparation in the United States. They were months in which we planned and plotted on a fixed policy of trusting for the best flying conditions and preparing for the very worst. That was the policy on which we studied transoceanic flying, loading, fueling, and the navigation side of the flight.

We maintain with some justice that ours was a more efficiently organized flight than those that had failed.

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*Besides the Australian authors of this article, the crew of the *Southern Cross* also included two Americans—James W. Warner, radio operator, and Harry W. Lyon, navigator.

Photograph by Pacific and Atlantic

THE SKIPPER OF THE "SOUTHERN CROSS," C. E. KINGSFORD-SMITH, WAVES GOOD-BYE TO AMERICA

The trimotored Fokker monoplane took off from Bay Farm Island, Oakland, California, at 8:54 a. m., May 31, 1928, for Brisbane, Australia, via Hawaii and Fiji Islands. It was the first aircraft to cross the Pacific.

This was because we made all our plans to meet every kind of trouble that could beset us. We did not lightly regard the chances against us. We, perhaps, assessed them at more than their due weight. By doing so we gave ourselves a margin of safety. It has to be remembered, too, that we had no precedent to consider beyond Honolulu. There was a 3,144-mile ocean hop through the Tropics that was capable of testing to the utmost even the most efficient equipment.

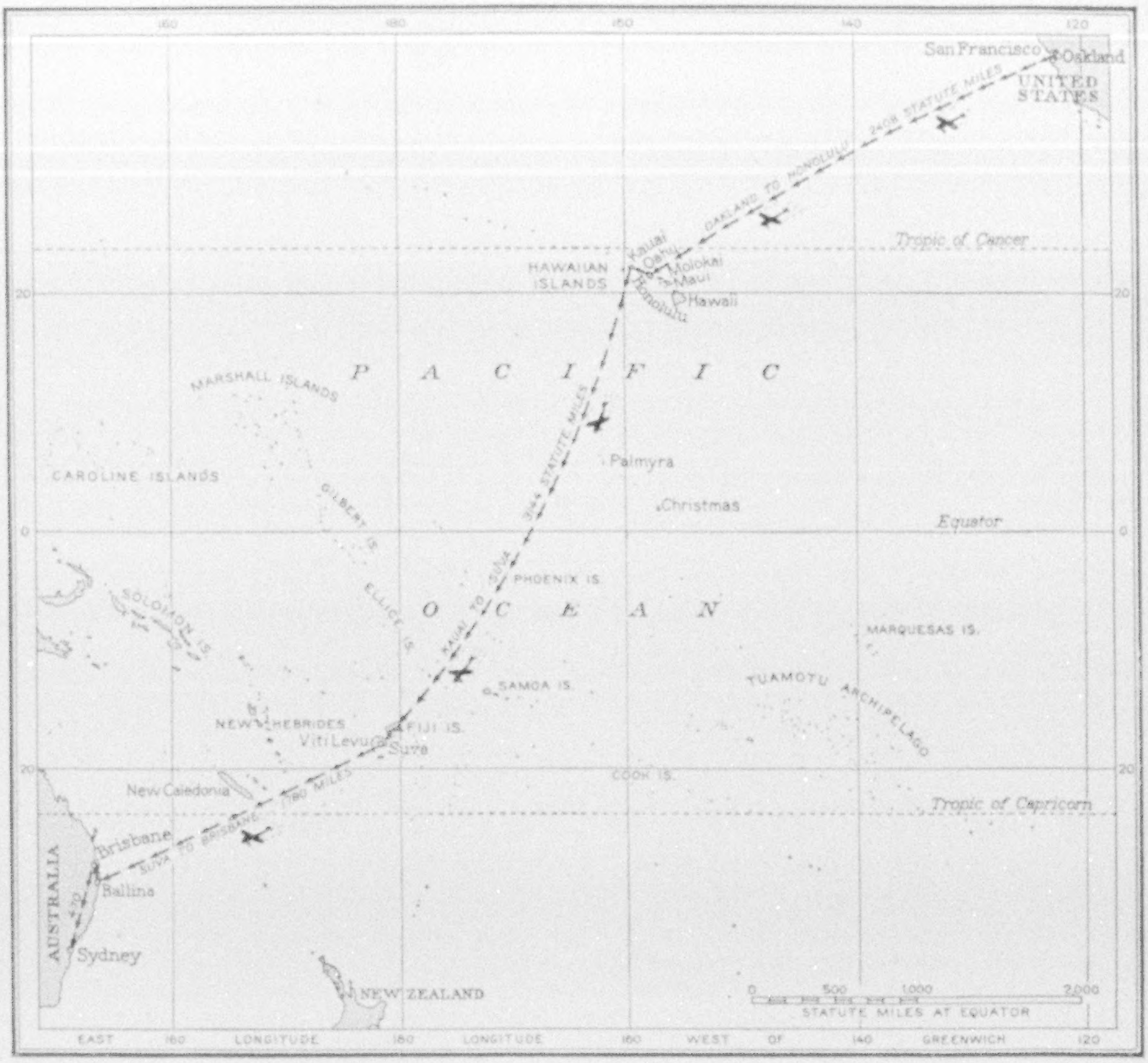
Adequate equipment means money. It was our lack of money backing that was the direct cause of our delay of months in starting the flight. Indirectly, the Dole Race disasters, and the failures on the Atlantic reacted against us when we sought the necessary funds to equip ourselves.

A PILOT MUST HAVE FAITH IN HIS INSTRUMENTS

Then there was the candid lack of confidence in us publicly expressed by certain Australian airmen. Their critical views were based on lack of knowledge of two of the biggest factors in the Pacific flight. These were blind flying with heavy overloads and long-distance oversea flying.

Both are comparatively new angles to flying, and we were as ignorant of them as our Australian critics until we reached the United States.

We began properly to appreciate the difficulties that faced us when we learned by study that without special flying instruments no one can fly efficiently in total darkness for an hour. We learned quickly to realize the vital value of the bank-and-turn indicator; the rate-of-climb meter, and the earth-inductor compass. These sensitive instruments tell a pilot whether the plane is moving up or down, whether it is banking laterally or turning. Until a man can fly in a black void for hours seeing these instruments and nothing else, he is not a safe pilot to fly a plane over long stretches of water. A pilot flying blind must have immense faith in his instruments. He must train himself to realize that if the barometer of his senses


San Francisco
Oakland
UNITED STATES
OAKLAND TO HONOLULU 2408 STATUTE MILES
Tropic of Cancer
HAWAIIAN ISLANDS
Kauai
Oahu
Molokai
Maui
Hawaii
Honolulu
PACIFIC OCEAN
MARSHALL ISLANDS
CAROLINE ISLANDS
GILBERT IS.
Palmyra
Christmas
Equator
KAUAI TO SUVA 3144 STATUTE MILES
PHOENIX IS.
SOLOMON IS.
ELLICE IS.
MARQUESAS IS.
SAMOA IS.
TUAMOTU ARCHIPELAGO
NEW HEBRIDES
FIJI IS.
Viti Levu
Suva
COOK IS.
New Caledonia
Tropic of Capricorn
SUVA TO BRISBANE 1760 MILES
Brisbane
Ballina
AUSTRALIA
Sydney
NEW ZEALAND
STATUTE MILES AT EQUATOR
EAST LONGITUDE
WEST OF GREENWICH

Drawn by James M. Darley

THE "SOUTHERN CROSS" BLAZED AN AËRIAL TRAIL ACROSS THE PACIFIC

disagrees with the instruments they are right and his senses are wrong.

A MAXIMUM LOAD WAS ACHIEVED GRADUALLY

Feasible loading was one of our biggest problems. As is now well known, we created what was then a world's record for composite loading, by successfully flying with a load of 15,807 pounds, which gave us a composite load of 49.2 pounds. This was done only after a series of building-up load tests, during which we carried loads of 50 per cent, 60 per cent, 70 per cent, 80 per cent, 90 per cent—95 per cent before actually taking off with a full load. During this test flight we created what we believe to be a world's record for sustained flight in multi-engined, heavier-than-air machines, by staying aloft for fifty hours seven minutes.

One of the chief reasons why we first considered a Fokker plane for the Pacific flight was that the then world's record for composite loading was established in a Fokker by Lieutenants Oakley G. Kelly and John A. Macready. Then, of course, we had before us a record of Fokker planes used by Comdr. Richard E. Byrd in his North Pole and transatlantic flights,* and by Lieutenants Lester J. Maitland and Albert F. Hegenberger in their flight from Oakland to Honolulu. However, as we had to make a nonstop, over-water flight longer than any previously made in Fokkers, we could not afford to take anything for granted, and therefore devoted much time to testing.

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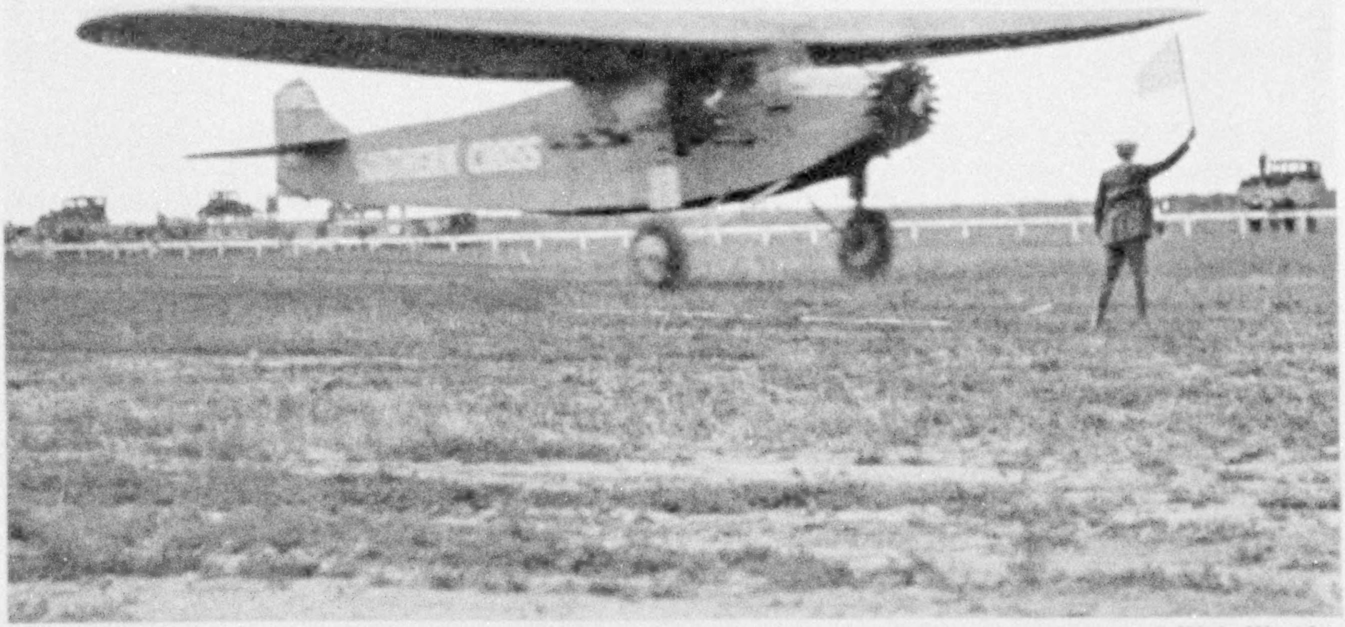
* See, also, in the NATIONAL GEOGRAPHIC MAGAZINE, by Comdr. Richard E. Byrd, "The First Flight to the North Pole," September, 1926, and "Our Transatlantic Flight," September, 1927.



Photograph from Wide World

STARTING THE LONGEST OVER-WATER FLIGHT EVER MADE

The *Southern Cross* taking off from the airport at Oakland, California, on its 7,400-mile flight to Australia. A remarkable phase of this flight was the radio communication kept up between the plane and the rest of the world.

Strictly speaking, every plane that has set out on a nonstop flight of 2,000 miles or more has been overloaded. It has carried a greater load than it was designed to carry with the required normal safety factors. We needed range in miles on our flight and a plane that would fly when very heavily overloaded.

Six times the *Southern Cross* took off in America with loads greater than those that it had to carry on the Pacific flight. During these load tests we had to redesign the rudder, strengthen the fuselage, and fit the plane with stronger axles and wheels. To avert undue strain on the plane in landing, we dumped 3,400 gallons of gasoline in test flights, and on one test we carried gasoline of a weight equivalent to that of 57 men of 160 pounds each.

MANY INSTRUMENTS WERE NECESSARY

When leaving Barking Sands, Kauai, we carried 1,300 gallons of gasoline, having four tanks in the wings, the main one in the fuselage, and another under the pilot's seat. Our three Wright "Whirlwind" *J5C* engines gave us 1,825 revolutions a minute, and we had a cruising speed of 90 miles per hour.

Navigation was, of course, a vital factor in the flight. High rate of drift by aircraft is an element that obtrudes itself, from which the marine navigator is comparatively free. An air navigator needs every source of information on his position at his disposal. Most of our navigation was by dead reckoning—that is, a compass course corrected for compass errors and drift. We carried a master aperiodic compass mounted on a nonmagnetic tripod, and three steering compasses. We carried also a speed-and-drift meter, a pelorus drift-indicator, smoke bombs for day use, and water lights to gauge drift at night (see illustration, page 393).

We had, of course, a sextant for use in astronomical navigation, fitted with an artificial horizon attachment for periods when a good sea horizon was blotted out by cloud or rain. This allowed the navigator to attempt to measure the angular distance between one fixed and one moving point instead of between two fixed points, as is done with the true horizon.

Photograph by Herbert

WISE AVIATORS ALWAYS DODGE FLYING BIRDS

Striking a bird in the air might break a propeller; yet between birds and flying men a close affinity exists. Langley and other pioneer plane builders studied bird flight for years; some patterned their models after soaring birds with wings outstretched.

Our radio equipment was one of the outstanding features of the flight. We did not, as many people seemed to believe, install radio just so that listeners on both sides of the Pacific could keep in touch with us. The importance of radio as an aid to air navigation is growing, and it was our valuable ally on the big flight. Our radio equipment was declared to be the finest ever installed in aircraft, and repeatedly proved its worth. We could send and receive on both long and short wave lengths. The long wave we used for reception of beacon signals and for speaking to vessels for our radio bearings. For shore stations we used the short wave.

NOTHING WAS LEFT UNDONE TO INSURE SAFETY

We could send signals for steamers to use in taking bearings that were radioed back to us, and also keep in touch with the radio beacon that was being flung across the ocean. We lost this soon after leaving San Francisco.

We had with us two Americans: Harry W. Lyon, a skilled marine navigator, and James W. Warner, a radio operator who has few peers.

We believe that no contingency was overlooked. There was only a remote chance of our being forced down on the sea, yet we had fitted a dump valve that could drop the bulk of our gasoline load in 50 seconds. We carried steel saws that would have enabled us to cut off the outboard motors and steel fuselage and turn the wing into a raft. In the wing we had placed emergency rations, a still to condense water, and a water-tight radio transmitter. Four gas balloons were carried to lift the aërial of this transmitter.

Thus we were equipped and safeguarded as far as it was humanly possible.

It was 8:54 on the morning of May 31, 1928, when we took off from the runway at Oakland Airport at 87 miles an hour. We were followed out over the ocean by the good wishes of the crowd that saw us off. In 12 minutes the skyscrapers of San Francisco, looking white and spectral, were swallowed up in the gray-brown pall that enshrouded the Golden Gate. Our last picture of them was as they stood,

THE FULL-RIGGED SHIP "FUSETOLA" OFF HONOLULU

Honest old craftsmen built something of their own sturdy natures into these graceful windjammers of another day—capable and dependable in fair weather or foul.

baseless and serene, like a magic city hanging in clouds. We were to see more magic cities rising and crumbling to nothingness in the amazing cloud banks that we encountered farther out (pages 374, 377).

We climbed at 92 miles an hour, and, chuckling over our favorable start on the long air trail, we stuck a small silken Australian flag between two gasoline gauges in our cockpit. In the hours that followed, it was so beaten by the wind that only the stick remained.

The Farallon Islands swam into view through the hanging wreaths of mist, and rapidly glided astern. They dropped down into a mantle of cloud that enfolded the coast, and we had seen the last land for 27 hours.

Before us swept an immensity of ocean, the color of ashes, in the haze. As our course steadied, the roar of the engines assumed for us the pleasing grandeur of a symphony of great music. Right along the big ocean trail, our ear for motor rhythm became as exacting as the ear of an orchestral conductor, and never had we cause to be displeased.

The voice of those engines drowned ours. We had to scribble penciled notes to one another. The first exchange of them had to do with getting back on to the T zone of the radio beacon, as we were steering slightly to the north of it. Lyon got us back on to it by moving the earth-inductor controller. This was on our advice, and it was particularly pleasing to us that thus early the value of our strivings for complete equipment had been vindicated.

BLIND FLYING AN UNCANNY EXPERIENCE

Less than two hours out we had to scale our first cloud mountain. Its white pinnacles were easily mastered, and at 2,000 feet in clear air we looked down into its valleys and ridges. Before noon it had

Photograph by Acme Newspictures

THEY'RE OFF—FROM THE GOLDEN GATE TO BOTANY BAY

Rising with its heavy load of gas and its crew of four, the *Southern Cross* leaves Oakland, flies low across San Francisco Bay, passes over the city's water front, and then heads west through the Golden Gate for Honolulu. This first leg of the transpacific flight, 2,408 miles, was made in 27 hours and 25 minutes (see, also, text, page 375).

been impressed on us with force how experience counts in flying.

In four hours we had put from 330 to 350 miles between us and San Francisco. At a speed of 86 miles an hour we raced over a drifting white world of clouds. We could not see the ocean. The cloud peaks seemed to marshal themselves into a never-ending march. It was 1:12 p. m. when this vast gray-white cloud world suddenly disintegrated. The whole mass seemed to blow up at us without warning. We opened up the motors and had our first 20 minutes of blind flying. We ascended to 2,900 feet, but the clouds followed us.

At 2:15 p. m. we burst out of this gray wilderness and the steel-blue plain of the ocean once more opened up before us. We came down to 1,200 feet, having received the first decided bumps of the flight up there among the cloud ridges. Now the steel of the sea turned to a vivid turquoise. Not a single fleck of foam marred the endless mirror. The sea smiled benignly, but above us there were high drifting clouds, light as thistledown. A gray haze that had blotted out the ocean's rim far ahead lifted, and the sun blazed out like hammered brass. In tonic air we rushed on.

Visibility was perfect, but the whole ocean was empty. It was 4:35 p. m.—we had been flying for nearly eight hours—and we had not sighted a steamer. To test our differing estimates of the amount of gasoline at our disposal, we began to run on the supply from the outboard wing tanks, and pumped from the main tank to the center wing tanks.

THE GLORY OF A MID-PACIFIC SUNSET

Lyon, at 5:50 p. m., found by a snap sight that we were south and west of our dead reckoning position. Eighteen minutes later he passed through a note showing that we had covered 700 nautical miles and had 1,391 to go to reach Honolulu.

In a flare of fire, the sun sank quickly on the starboard bow. For an hour we flew against a background of beauty greater by far than anything conceived by the world's masters of painting. The sun

IN MID-PACIFIC HAWAII LIFTS ITS AMAZING RICH FIELDS OF CANE AND PINEAPPLE

No region anywhere has made a more singular economic transition than our Hawaiian group. From a whaling base and the home of a few missionaries and traders, capital and enterprise have raised our Pacific islands to huge producers of agricultural wealth. Molokai coast from 6,000 feet in the air.

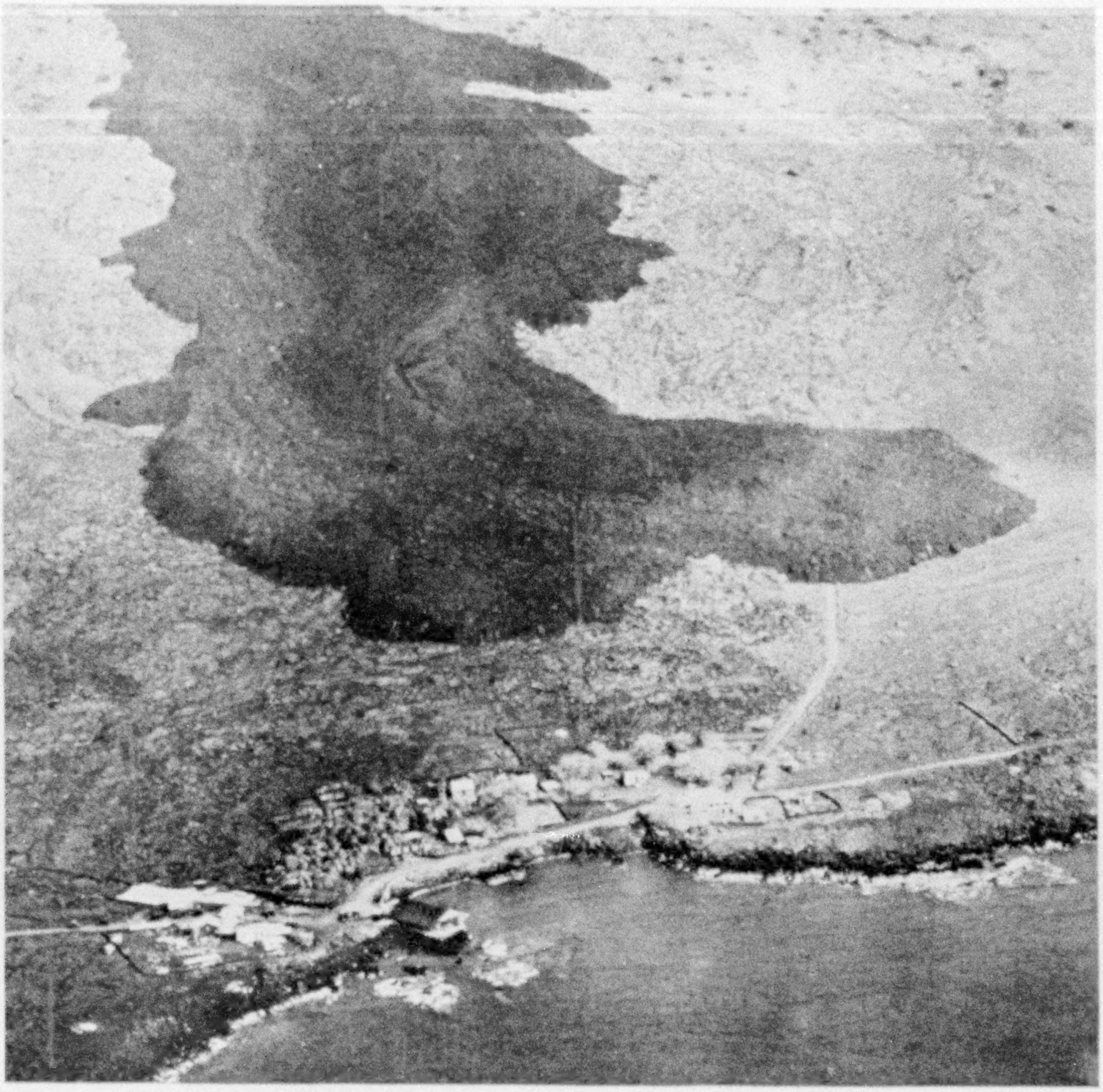
slid down in a blaze of glory, glowing like a fiery furnace in the heavens. Its rays lit up a great bank of snowy clouds that glittered vividly against a ground of azure—a dream city of white battlements hanging on the horizon.

Now the battlements of cloud turned to opal, to amethyst, to violet. Gray dragging fringes were transformed to curtains of gold and silver. The horizon glowed crimson and the dying sun painted a path of gold across the ocean. As we droned on, the path of gold shrank to a flashing gutter of gilt, and the sun was gone!

It was then 8 p. m. Six minutes later, the outboard wing tanks cut out and we flew over cloud banks that looked gray and ghostly in the dusk. Darkness muffled us, and the stars popping out in showers brought joy to the navigating heart of Harry Lyon. Behind us a pale radiance illumined the sea, and we began to fly above a long silver path painted by the moon. Her lamp was welcome after the dead blackness that followed the sunset.

We had climbed before dark to between 3,750 and 4,000 feet. It was safer up there in the darkness, particularly if we swept into a patch where blind flying was necessary.

At 10 p. m. Lyon flung out water light flares, which he used with the drift meter.



THE DOOMED TOWN OF HOOPULOA A FEW HOURS BEFORE THE LAVA STREAM DESTROYED IT

Hawaii's largest active volcano, Mauna Loa, sent down this wide lava stream in April, 1926. Burning the forests on the slopes and bouncing great bowlders ahead of it, the stream finally engulfed and totally destroyed the little coast village of Hoopuloa. Army flyers, observing the disaster from the air, saw big fish and turtles hurrying out to sea as red-hot lava heated the shore waters. Mauna Loa is on the large island of Hawaii.

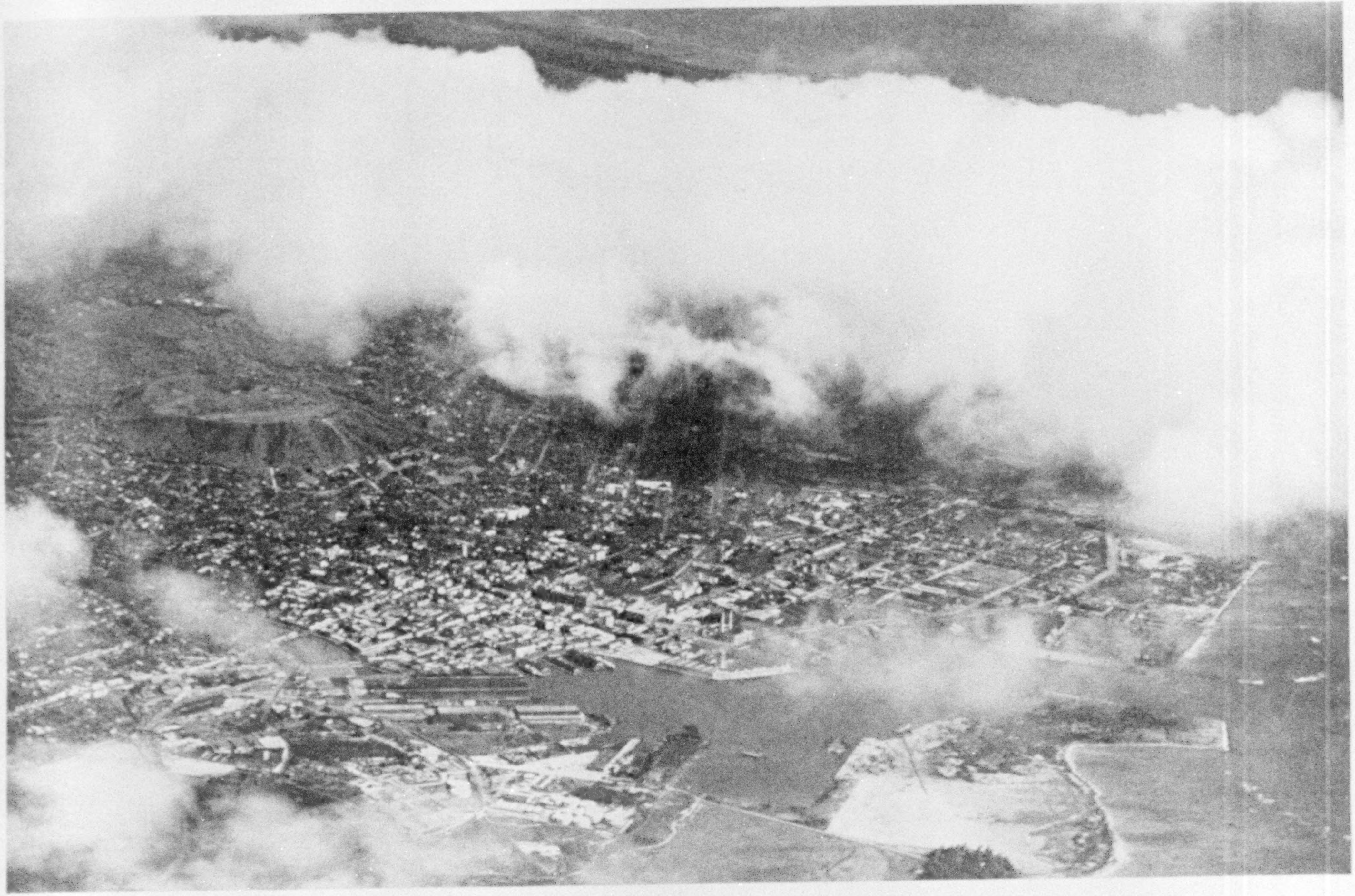
They blazed up well—were visible for 20 minutes—and were useful in measuring drift at night. In the daylight, however, they proved to be of no special value.

At their first use that night they showed a very slight drift to the southward. The stars dwindled, and at 11:36 p. m. we rushed into heavy clouds at 4,000 feet. Then rain smote us for the first time on the flight, and we ran into our second spell of blind flying. For about 15 minutes the bumps and jolts were many, and the rain lashed the plane. We climbed to 4,800 feet, slashing through the cloud reservoir that had poured the rain on us, and above it the stars winked and the moon etched the tumbling cloud banks with silver.

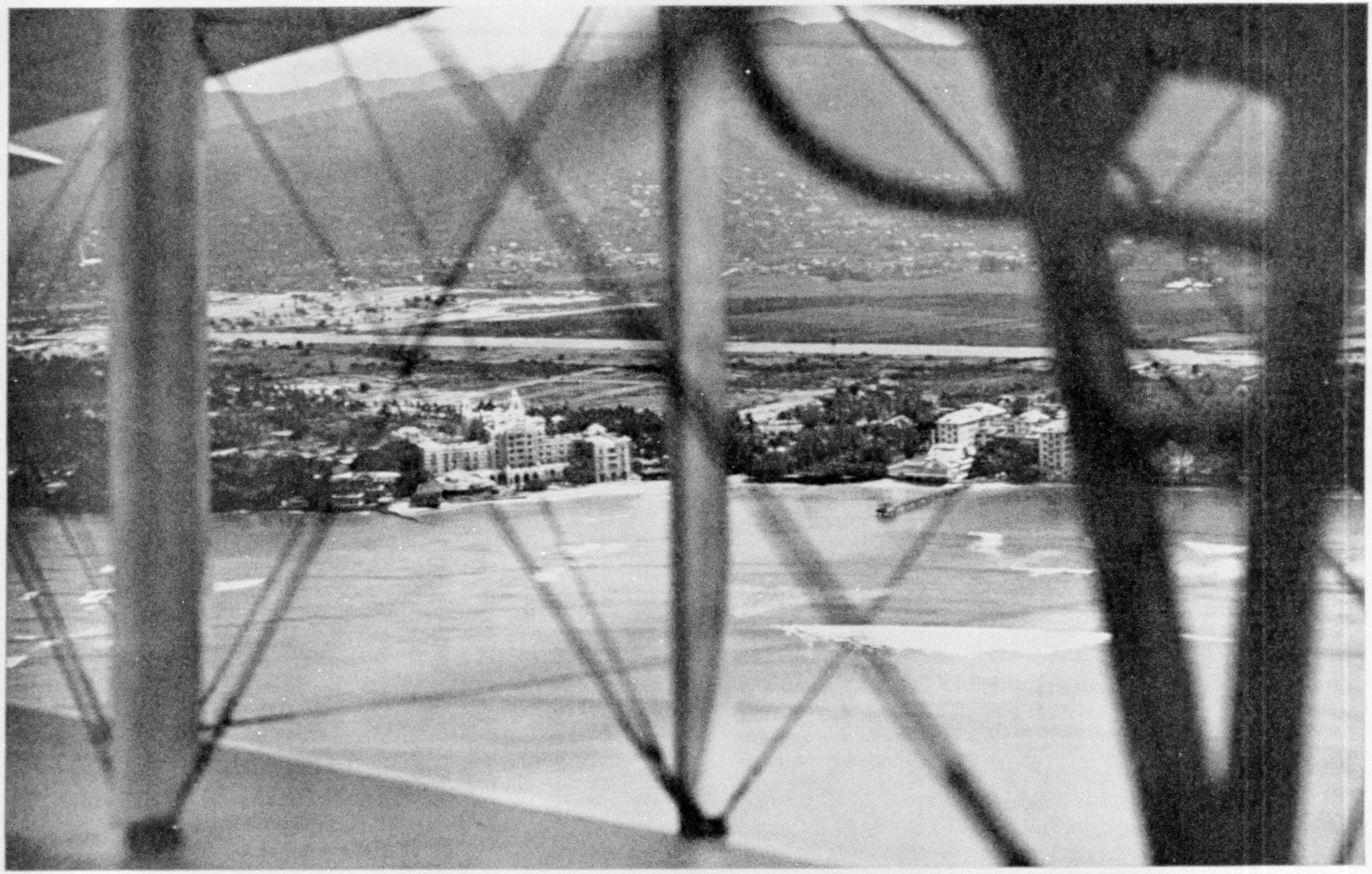
STEAMER LIGHTS A WELCOME SIGHT

At midnight our altitude was 5,400 feet and our speed 77 miles an hour. Ulm estimated that we still had 570 gallons of gasoline in the tanks; the stars and moon were keeping us company, and, in spite of lurking cloud banks ahead, we felt in excellent good humor.

Up to this the sunset, the moon, the



RACING CLOUD PATCHES OFTEN SPRINKLE ONE SPOT IN HONOLULU WHILE A BLOCK AWAY THE SUN IS SHINING



HONOLULU'S FAMOUS "BEACH AT WAIKIKI," WITH ITS SPLENDID HOTELS, IS ENJOYED ANNUALLY BY TENS OF THOUSANDS OF TOURISTS

IN THE WAKE OF OLD WHALERS COME NOW THE SCHOONERS OF THE SKY

Army and Navy planes met the *Southern Cross* over Oahu Island and escorted it to its landing place at Wheeler Field, Hawaii.

fantastic cloud shapes, had done their best to break for us the crushing monotony of that onward sweep between sea and sky.

But at 1:50 a. m. we were rewarded by a new diversion. On the port bow we sighted tiny lights outlining the black blur of a steamer. Ulm flew the plane on toward her, while Kingsford-Smith signaled the ship with our searchlight. This was of 6,000 feet beam, and was fitted with a Morse key. The vessel signaled back with a very bright light.

At 1:55 we swung back on to our earth-inductor compass course in a clear sky, with no clouds. At 2:17 a. m. Lyon sent a note through to Ulm stating that Warner had been in radio communication with the S. S. *Manoa*, and that we should soon see her. At 2.33 a. m. we sighted the *Manoa* on the port bow, Ulm again flying, while Kingsford-Smith signaled with the searchlight, and at 2:45 a. m. the *Manoa* passed out of sight.

We again returned to the earth-inductor course, and at 3:37 a. m. went into another rainstorm.

CLOUDS ASSUME FORMS OF FANTASTIC BEAUTY

We had, prior to this, throttled back the motors to under 1,600 revolutions per minute, but when we met this rainstorm we opened them up to 1,700 revolutions per minute and climbed above it. At 4:45

a. m. we were bowling along at an altitude of 6,000 feet, above clouds, and in good weather.

It was at this point of our journey that we met the most amazing cloud picture of all. We gazed down from above into grim, gray cloud valleys, where the massive cloud cliffs glittered eerily under the moon. White cloud buttes stood out boldly like the ramparts of a giant Arctic berg.

They broke into deep canyons, they hunched into mighty peaks and fell away into bewildering white foothills and plains. Down in those tortuous ravines moonlight seemed to flow, scintillating like a trickling brook of melted silver. Dun cliffs crumpled, abysses closed, canyons were crushed, the silver rivers were lost, and a new cloud topography arose with every mile.

There was no world. We were sailing lazily on the Milky Way. An immense loneliness enveloped us. After an hour's flying in this dead dream world, dawn began to light up the sea. The fantastic hills and valleys crumbled away to a dreary, drifting smoke. The moon had set.

We opened our second day of nonstop flying at 7,500 feet, with the engines still playing that Wagnerian symphony above our heads. Not a cough, not a splutter had broken their perfect harmony. We were 375 nautical miles from Honolulu at 6:33 a. m. on June 1.

IMAGINARY ISLANDS RAISE FALSE HOPES

We glided steadily down from 7,500 feet to 1,700 feet below fairly light, drifting clouds. The cold air that had bitten us in the higher levels often during the night gave place to a warmer, more comfortable atmosphere. Then at 8:56 a. m. our minds were brought with a rush to the subject of desert mirage. Ulm sighted what he took to be land on our port bow.

Clouds seemed to sweep so steeply down to the very surface of the ocean that he felt sure that there was a cliff there on which the vapor had piled up. We shook hands on the strength of it. But it was only what might be called cloud mirage. There was certainly no cliff at the bottom of the fleecy peak, we proved as we swept forward. We were deceived in this way about ten times.

Once we could have sworn that a cloud formation was a cliff that threw massive blue shadows on the drifting film of vapor around it. At its foot were three dark-brown bulges that looked like rocks. We were fairly confident that we were above the rock-girt coast somewhere about Hawaii. But the cloud rocks dissolved and we were still flying over a steel-blue sea.

At 9:52 a. m. Kingsford-Smith thought we had the Island of Molokai on our port bow. But it was another of those islands of cloud that seemed to be drifting on the surface of the sea like great gray bergs. Another hour of false alarms about land and of steady flying through this jungle of deceiving cloud masses followed before we did catch our first real glimpse of the Hawaiian group. It happened at 10:52 a. m. Kingsford-Smith was at the controls. We could never snatch a really good sleep in our hours of relief. In this we worked on no fixed periods of duty as pilots. Smith piloted till he felt in need of a rest, and then Ulm relieved him.

MAUNA KEA LOOMS THROUGH THE MISTS

We had spent a couple of hours trying to pick out a fixed object among the cloud drifts. But everything we thought likely to be solid always moved eventually and we had to look for another.

It was while we were peering at every cloud bank in this way that far away on the port bow a brown bulge suddenly emerged—a domelike island rising from a vast ocean of vapor. It was massive, but when we first sighted it it was far to port. Unlike the other earlier deceptions, this dark pinnacle stayed fixed, and we picked it as being the peak of Mauna Kea.

"How high is that lump of land?" asked Harry Lyon by note. We wrote back, "About 12,000 feet." (It was really 13,823 feet, we heard later.)

Smith brought the plane around, and we knew we were over the fringe of Hawaii. A heavy fog muffled the island of Oahu and we glided down to get under the curtain. At 11:28 a. m. we had Maui on the port beam and Molokai on the port bow. Once through the fog belt we could see the Hawaiian Islands far beneath us, purple and gleaming in the sunlight.

It was 12:17 p. m. when we landed at Wheeler Field, the first hop of our flight (2,408 miles) having taken 27 hours 25 minutes.

Photograph by Post Studio

HONOLULU'S FLORAL TRIBUTE OF HAIL AND FAREWELL

To be decked with wreaths, or *leis,* and to hear the soft, sad strains of "Aloha Oe," the Hawaiian song of farewell, has been the experience of visitors to Honolulu for years without number. *Left to right:* Navigator Lyon, Pilot Kingsford-Smith, Relief Pilot Ulm, and Radio Operator Warner at the Royal Hawaiian Hotel, Waikiki Beach.

We were greeted by the Hon. Wallace R. Farrington, Governor of the Territory; Col. Perry M. Smoot, of the National Guard; Maj. Henry J. F. Miller, the commanding officer at Wheeler Field; Capt. Lowell H. Smith, leader of the American Army round-the-world flyers; Arthur C. Goebel, winner of the Dole Race, and Martin Jensen, who won second place.

We do not think we have ever seen so many cameras before in our lives. Wheeler Field is 24 miles from Honolulu, and we were motored in and taken to the Royal Hawaiian Hotel and greeted by the manager, who insisted upon our being his guests during our stay.

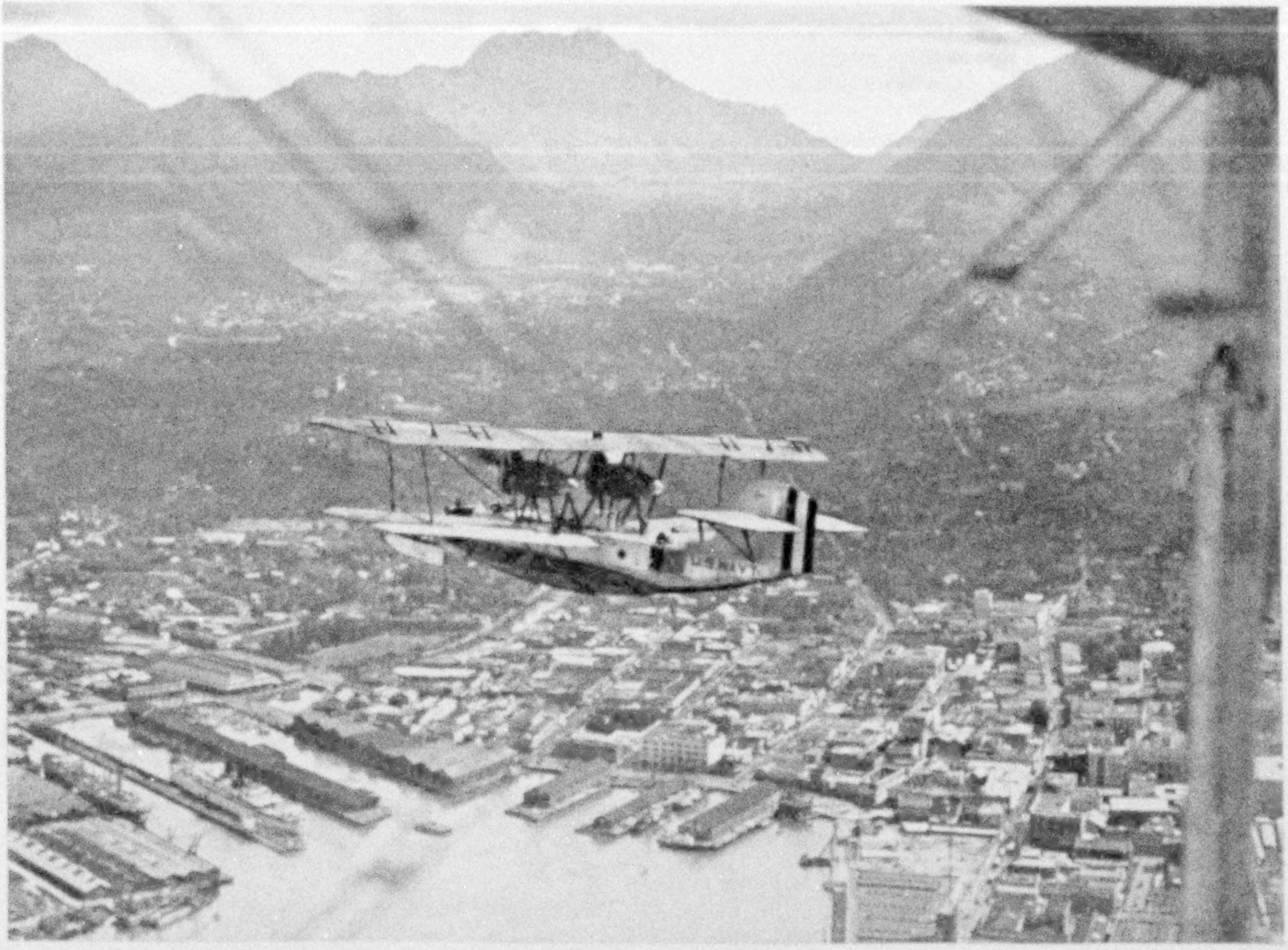
As usual, the first thing we all needed immediately after landing was a smoke, and next, some real food and sleep.

ARMY MECHANICS LEND A HAND

Before turning in, however, we arranged with Major Miller and Captain Smith for Army mechanics to check over our motors and to have everything ready for us in the morning. Then we would go out and drain the balance of the fuel in the tanks, so that we might accurately check our fuel consumption. At that time we thought it much higher than we had anticipated.

As an additional safeguard on our Honolulu-Suva hop, we asked for information concerning the possibility of landing on one of the islands in the Phœnix group, and were fortunate in getting into touch with Mr. Edwin H. Bryan, of the Bernice P. Bishop Museum. He had himself toured these islands, and he was able to give us very accurate information, together with charts and photographs, showing that it was quite possible to effect a safe landing at Canton Island and at Enderbury Island.

Early next morning we went to Wheeler Field, and while the Army mechanics were finishing checking the motors, we drained the gas out of the tanks



NOT FAR FROM HONOLULU A MIGHTY ARMY PERISHED

In the mountains near the capital city, Kamehameha the Great defeated the army of the King of Oahu and brought that island under his rule. So fierce was this native warfare that the defeated monarch and all his army chose rather to fling themselves over a great precipice than to yield themselves prisoners to the conquerors.

and took on board 700 gallons. We had previously arranged for a supply of gas to be waiting for us at Barking Sands, about 100 miles away, on Kauai Island, as we did not want to fly over and land with our full load.

Had it not been for the help given us by the United States Army and Navy at Honolulu and Kauai, it would have been impossible for us to have kept our schedule.

Lyon spent several hours with naval officers checking his sextant, etc., and Warner had the assistance of various radio experts at Wheeler Field. Nobody can deny the skill of Harry Lyon as a navigator, nor can we speak too highly of Warner as an expert radio man and one of infinite initiative and resource. His excellent work throughout the flight was a very great aid to Lyon's navigation.

We left Wheeler Field about 5 p. m., escorted by Major Miller and Captain Smith. They flew the Army transport plane in which Maitland and Hegenberger made the first flight from Oakland to Honolulu (see, also, text, page 373).

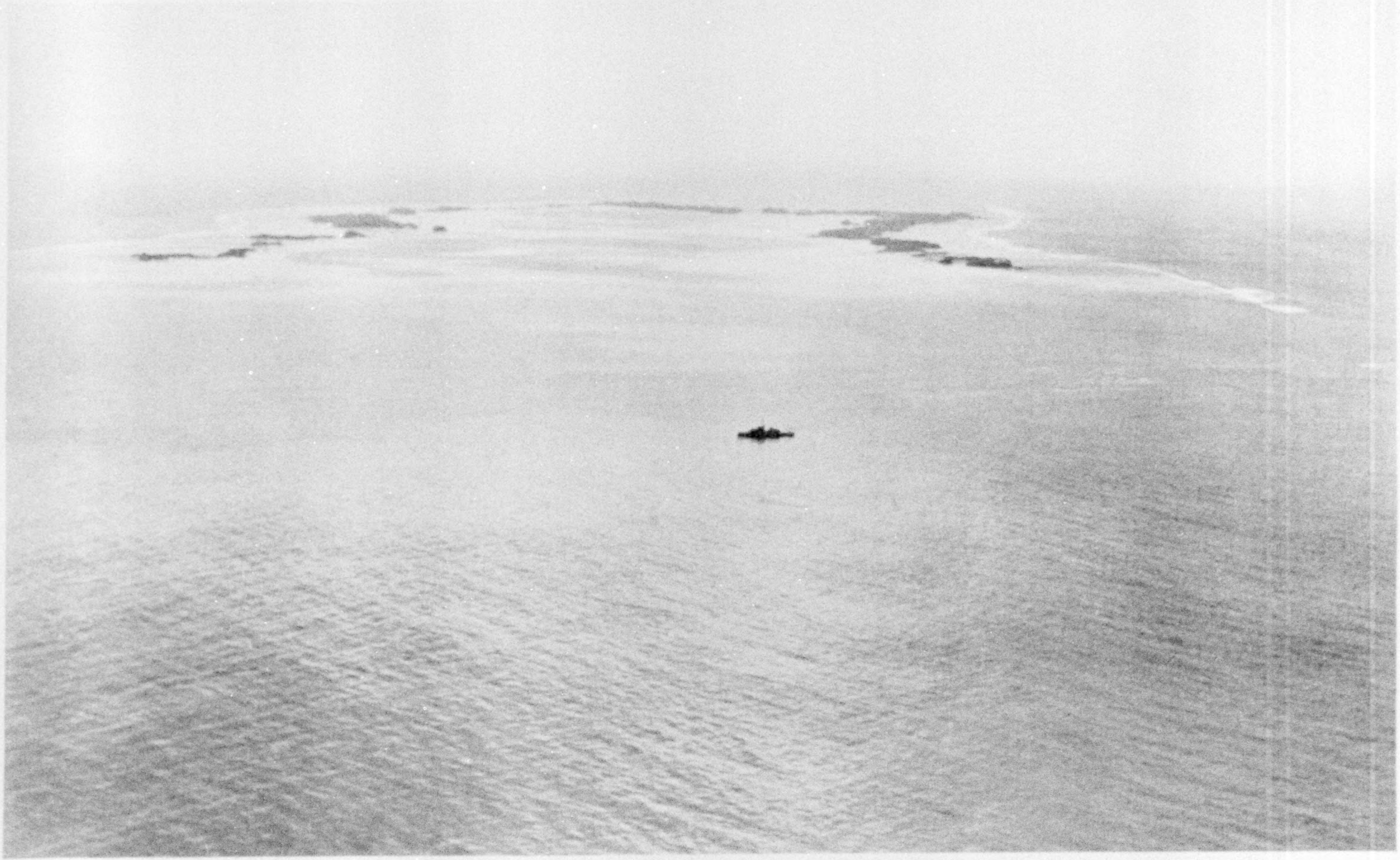
We arrived at Barking Sands about 6 p. m., and immediately inspected the runway, which was in much better condition than we had anticipated.

We were the guests of Mr. Lindsay Faye at this place that night.

THE SECOND LEG OF THE JOURNEY BEGINS

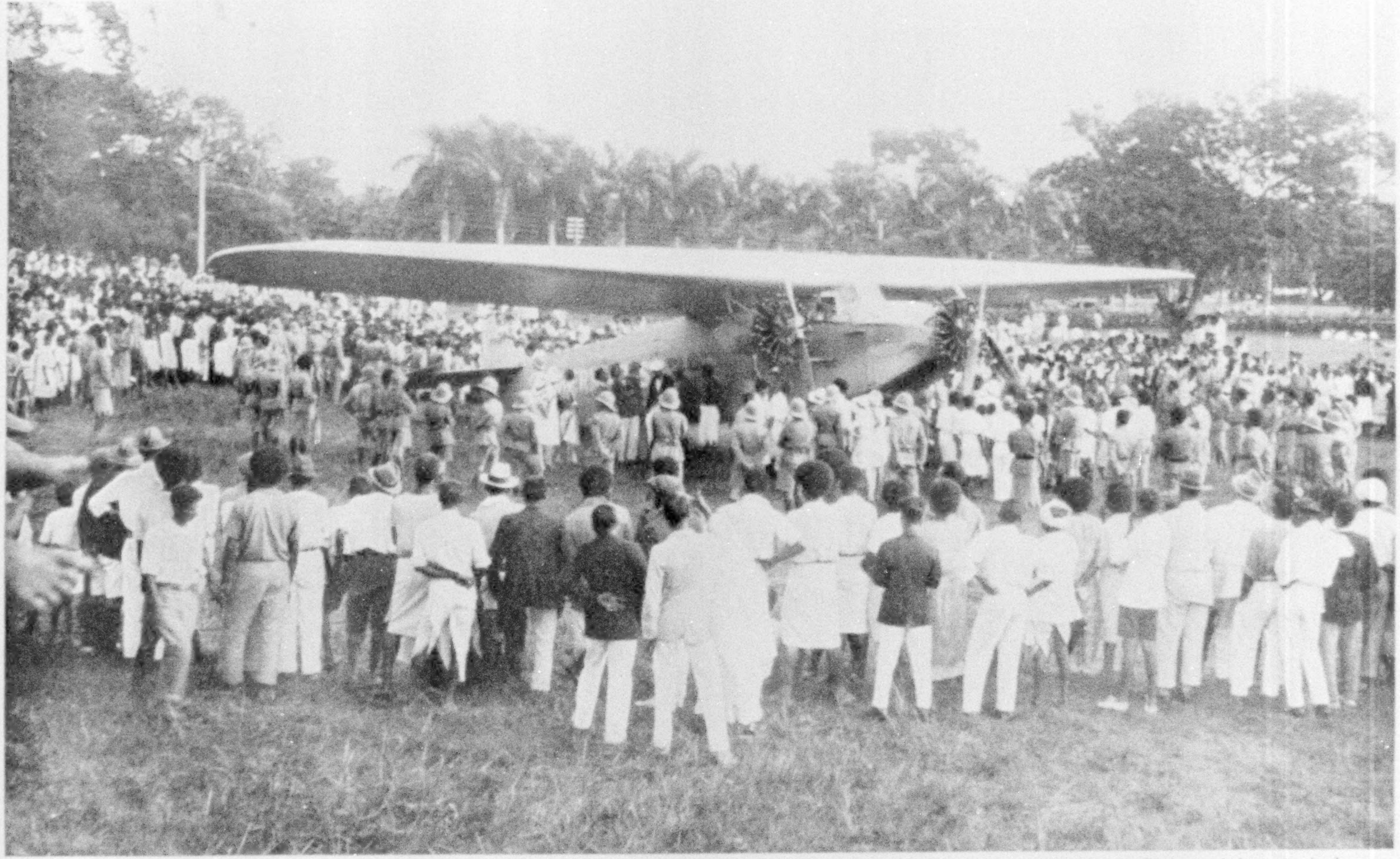
We rose at 3 a. m. on June 3, and drove 14 miles to Barking Sands. After a consultation on the previous evening, we decided to take 1,300 gallons of gasoline and to steer for a point 100 miles south on the course from Oahu to Suva. We had started out from Oakland with top-boots, breeches, a leather inside jacket, and a pair of overalls lined with rabbit skins. But indications in the morning at Barking Sands were that the day was going to be warm, so we left off our heavy flying suits.

We took off from a run of 3,400 feet at 5:22 a. m. Six minutes later our air speed was 99 miles an hour, and though



FAR OUT IN THE PACIFIC THIS TINY BIT OF LAND MAINTAINS ITSELF AGAINST THE RAVAGES OF THE SEA

Few Americans know that this cluster of islets in mid-Pacific is a part of their country. Palmyra Island, the highest point of which rises but six feet above the sea, belongs to the Territory of Hawaii. It has no inhabitants.



Photograph from the Authors

SUVA WELCOMES ITS FIRST AIR VISITOR

The Fiji group shelters a strangely mixed population. Besides natives, there is a goodly colony of British traders and planters and many thousands of Hindus from India, originally imported to work the plantations. They are now almost as numerous as the native islanders. Shortly before its arrival at Suva, the plane swept across the International Date Line and gained a day.

Photograph from the Authors

ONCE A KING OF FIJI SENT HIS WAR CLUB TO QUEEN VICTORIA AS A SIGN OF REFORM

Now law and order rule and agriculture and trade flourish in these islands, long notorious for murder and cannibalism. Fiji school children made this American flag of flowers for Warner and Lyon.

we got a few offshore bumps, we had reason to shake hands again on the successful take-off.

As Kauai dropped out of sight on the port beam, the moon was just sinking below the horizon on the starboard beam. In half an hour cloud banks heaped up ahead of us. We flew under them, as we were disinclined to fly blind, so heavily were we loaded.

Temporary trouble with one of the radio generators was quickly adjusted—we picked up the A beam signals and the whole outlook was particularly cheering. First rough checks on the gas consumption were more favorable than on the first hop. This was because we kept at a lower altitude.

At 7 a. m. the clouds had cleared, but we had a slight scare. Ulm thought he saw a gas leak above Smith's head, but it proved to be water from the condensation of cold gasoline in the pipe.

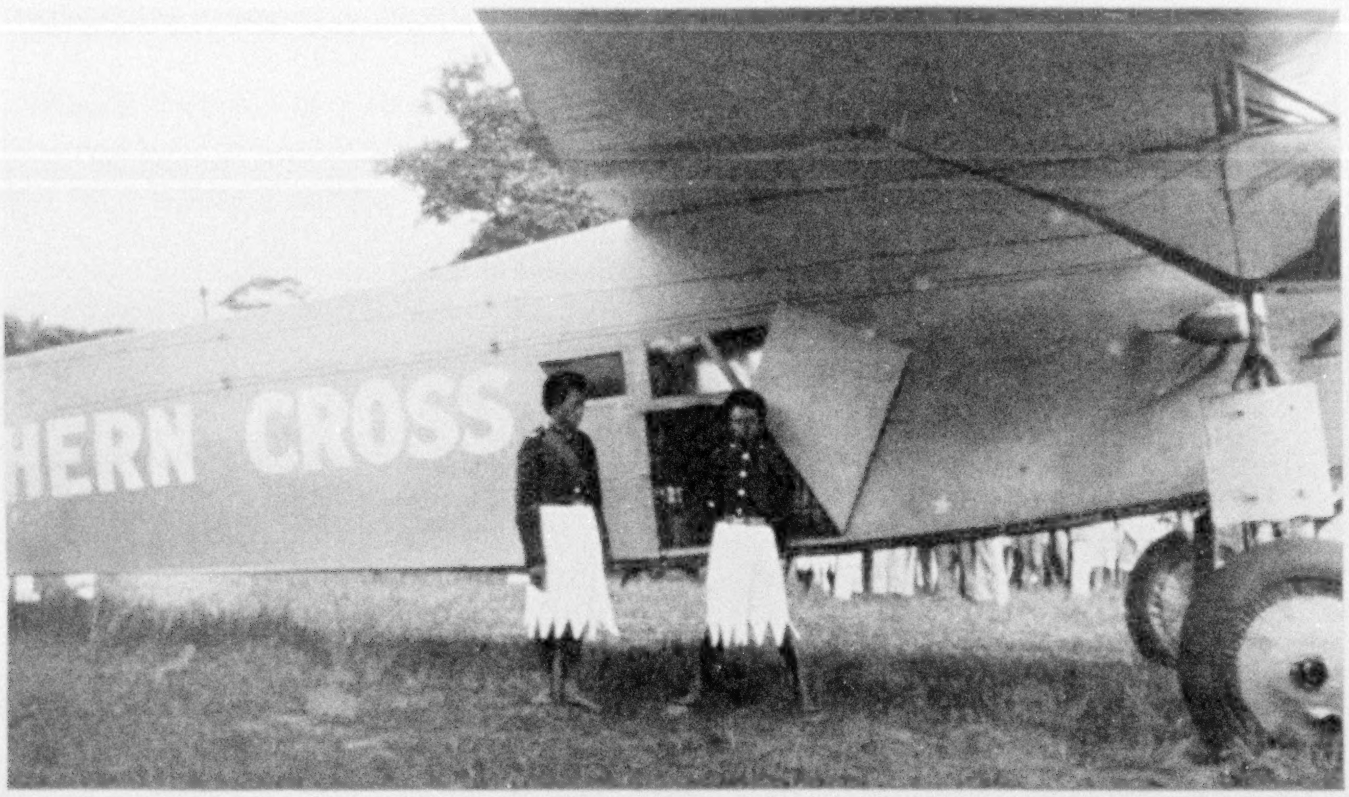
Lyon's humor was irrepressible. He passed through to us a message that the aperiodic compass had just "snapped out of a trance" and was functioning in agreement with the earth inductor.

WIND AND RAIN BESET THE FLYERS

Soon after this, rainstorms that had been lurking ahead for the previous three hours flung themselves across our path. An hour earlier the radio receiving gear went out of action. We were no longer able to chat with the world, and the sense of loneliness increased.

Like ominous gray curtains that trailed their fringes across the surface of the ocean, rainstorms charged at us from every direction, driven before a fresh wind. Ulm swung the ship out of the way of one and Smith steered her clear of a second. But the dark curtains closed in, beset us from every side, and merged into a great belt of swishing water. We were flying at only 600 feet, and overloaded as we were, this rain, blown by choppy gusts, was a specially unwelcome turn in the weather.

Visibility steadily shrunk, the rain became thicker, and at 11:50 we were flying blind and climbing to get out of the deluge.



Photograph from the Authors

FIJI POLICE GUARD THE PLANE AT SUVA

Less than a century ago Fiji cannibals ran naked, fighting with clubs and spears. Many a white sailor and missionary fell victims to their appetite. Happily now British civilization has redeemed these once barbarous Melanesians (see, also, text, page 397).

The plane bumped heavily in the tearing gusts, and we got out of it at 1,000 feet, only to be faced with another menacing black curtain of water. We glided down to 600 feet and missed the worst of it. In the heavy water-laden air and the waves of heat from the engines we began to perspire. As we took our coats off we swept past a cloud bank that was just dissolving a rainstorm that looked more wicked than those through which we had passed.

At 12:45 p. m. (Honolulu time) we had flown 630 nautical miles. Rainstorms came sweeping up at us endlessly, lashing the plane, beating a lively tattoo on the windshield, and making us fly through a dark, soaked sky-world that seemed to have no boundaries. Like Conrad's skipper, who preferred to plow through a China Sea typhoon rather than run up his coal bill, we resolved to keep flying at 600 feet, because if we went higher we would burn more gasoline.

Warner readjusted the radio gear; a faint suggestion of a cough in the starboard motor proved to be nothing radically wrong, and Lyon at 4:50 p. m. reported that we had made 1,020 nautical miles, which gave us an average hourly ground speed of 106.5 statute miles.

A little later we again dashed into heavy cloud banks. We climbed, and once more had to sidestep two savage bursts of rain that came tearing at us. The cloud curtains thickened, the rain lashed us with greater fury, and again we were in that dim, opaque world, flying blind.

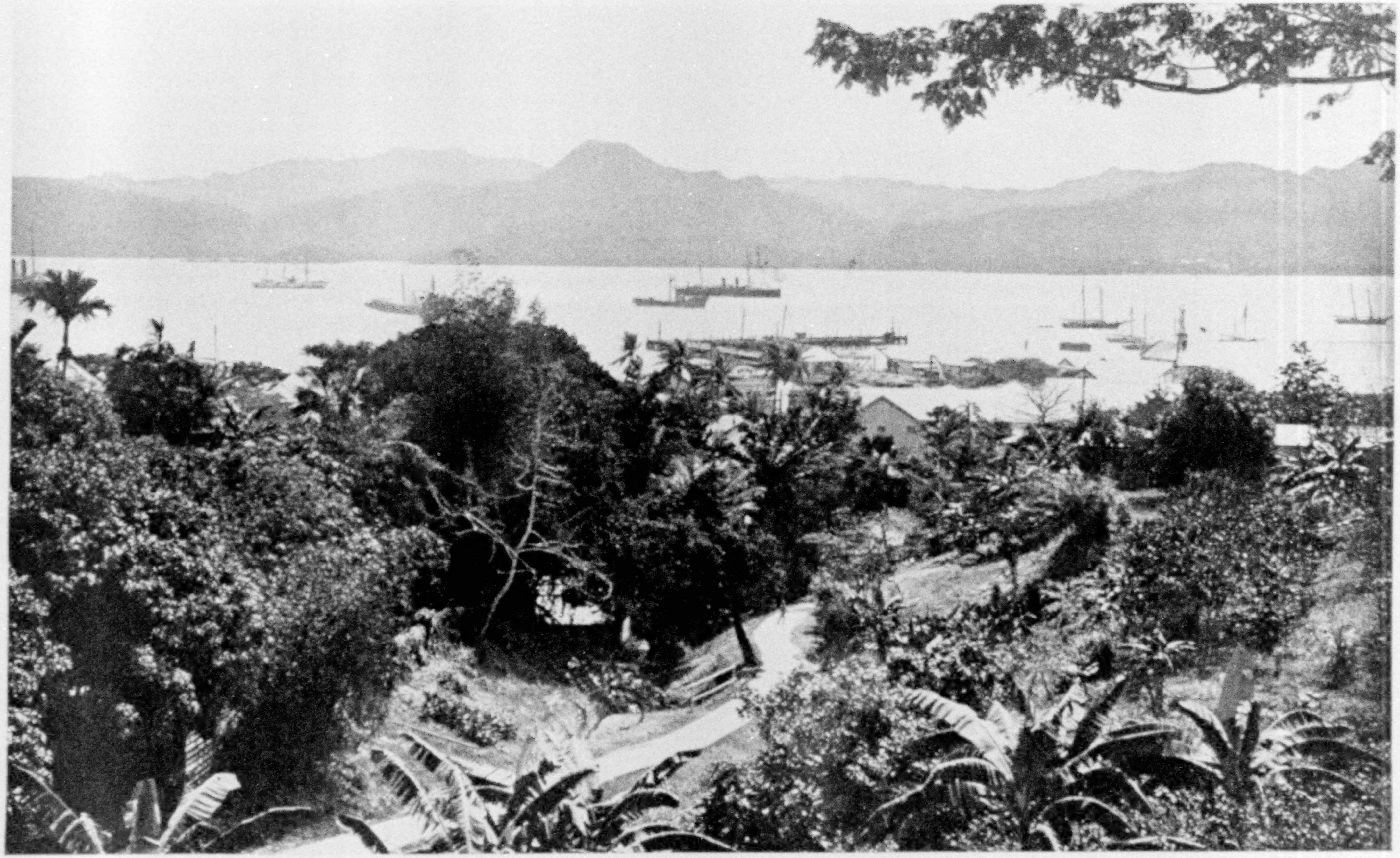
The windshields began to leak and water started to trickle in on us. In half an hour we were both very wet about the feet and legs. At 5,000 feet, and after a swing at right angles to our course, we shook off the clinging rain clouds, but a new mountain peak of cloud loomed ahead of us. We began to fly in circles, always steadily upward.

BACK AGAIN IN THE SOUTHERN HEMISPHERE

It was a breathless race between the *Southern Cross* and the clouds. First we gained; then they puffed up beneath the plane. Rain battered at the windshields. It was a stiff fight, that climb with the heavy load and the boisterous gusts tugging at us. At 7:15 p. m. we had reached 7,500 feet, but there was none of the sunset glory of the previous hop. Inky blackness, rain, and capricious winds made up the cheerless outlook for the night.

Official Photograph, U. S. Army Air Corps

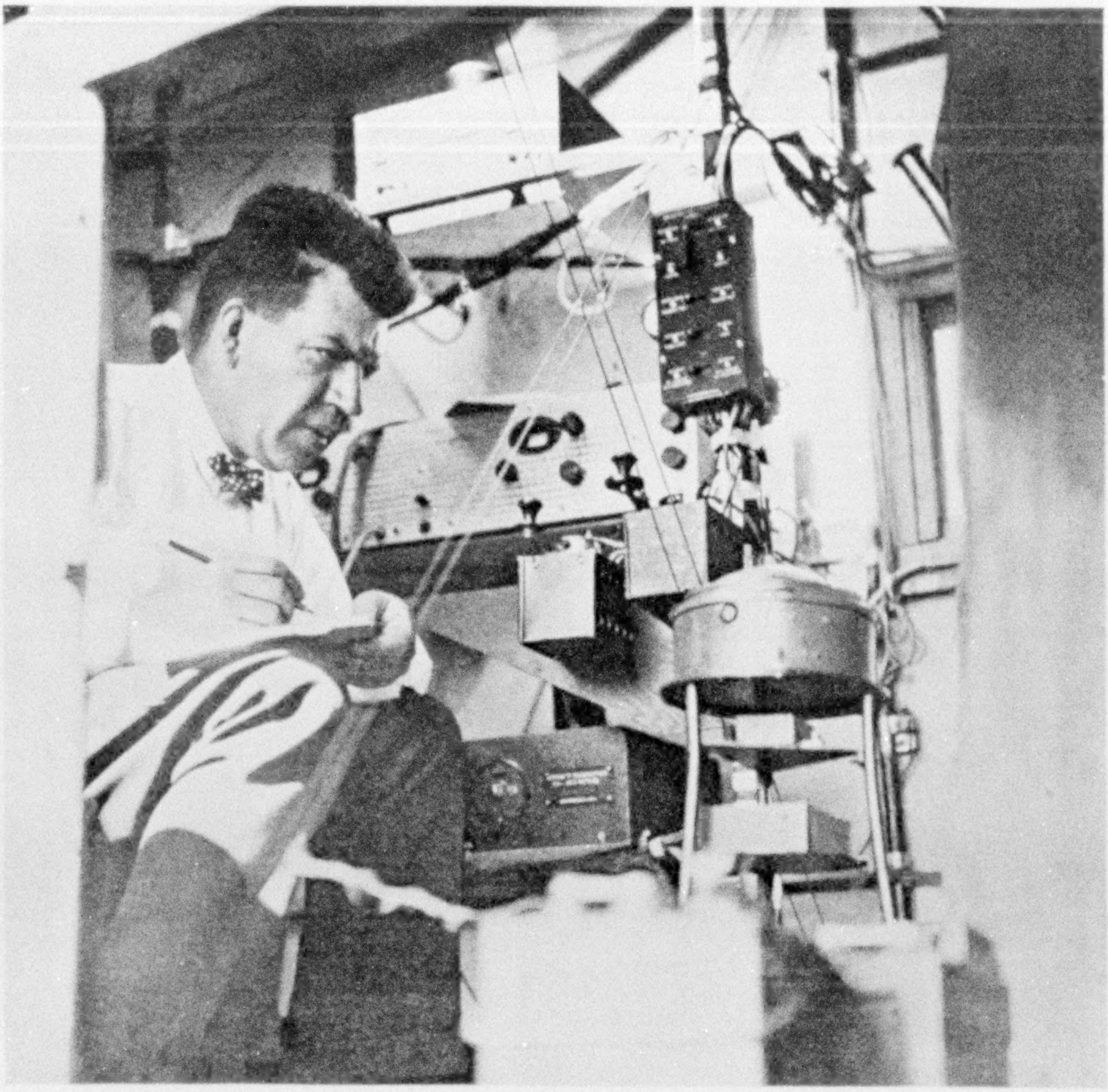
THROUGH BLIND MILES OF DARK CLOUD WORLDS, THE LONE PLANE ROARED ITS FEARLESS WAY



Photograph by Dr. Edward Burton MacDowell

FIJI IS A BRITISH COLONY OF ABOUT 250 ISLANDS, IN THE SOUTHWEST PACIFIC

Up to 1840, the natives bore such a reputation for savagery that few white men knew anything about them. Then the United States Exploring Expedition, under Charles Wilkes, made the first thorough survey of this Pacific garden spot. The harbor of Suva, capital of the Fijis, and the Honolulu of the South Pacific.



Photograph by Wide World

SUN, MOON, AND STARS ARE SIGNPOSTS OF THE SEA

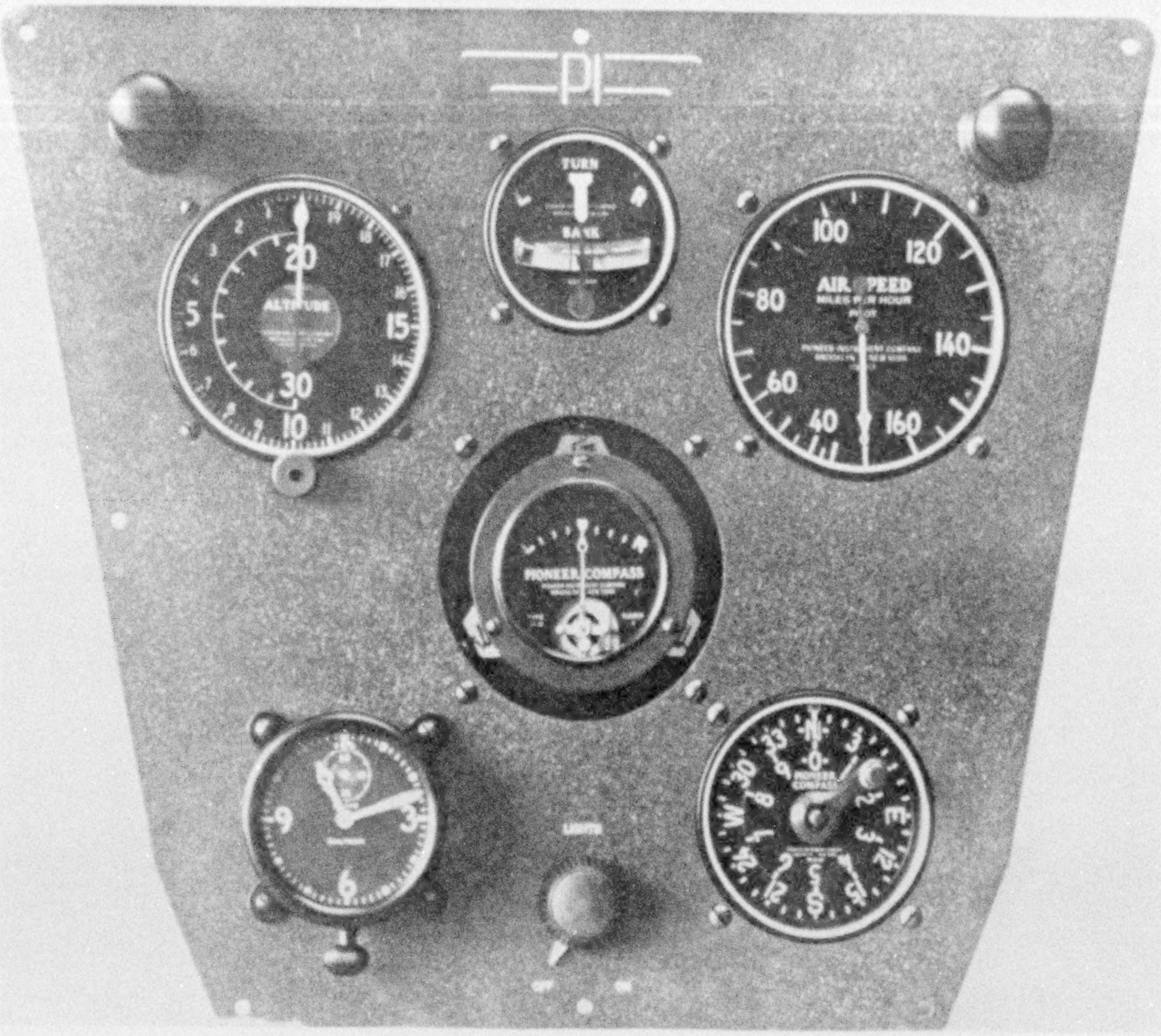
Like a giant skyrocket, the fire-spitting plane roared across the trackless seas, often flying blind in murky, tumbling storm clouds. Yet, by "shooting" planets when in sight and checking speed and drift, the American navigator, Harry W. Lyon, hit small islands along the course as accurately as expert riflemen make a distant bull's-eye.

But we won the race.

At 8,000 feet we had beaten the uprush of the cloud banks. We looked down on a world of tumbled vapor ranging away in ragged fringes on every side. Above us glittered the Southern Cross, the constellation whose name we were proud to bear on our ship. It gave us a genial welcome after the stress of the battle far below. It gleamed on the port bow like a shower of diamonds, in a vault of the deepest blue. There were other stars there, too, but we hardly saw them. The Southern Cross was to us the symbol of success. It looked good.

Ulm awoke from a doze at 11:33 p. m. to have Lyon pass him a note saying that we had just crossed the Equator. We were in our own hemisphere once more! This fact and the benevolent twinkle of the Southern Cross put us in the highest spirits.

Lyon's dead reckoning indicated that we had worked off our course, and at midnight he set a new course direct for Suva, and we swept ahead with the motors sounding as harmonious as ever. For four hours the only incident to break the monotony was Ulm's gulping at a thermos bottle of coffee that had gone bad.



Photograph from Wide World

INSTRUMENTS THAT SHOW HOW A PLANE IS MOVING

For flying over oceans, modern planes use these scientific aids to navigation. This board carries an altimeter, turn-and-bank indicator, air-speed indicator, earth-inductor compass, and clock. The earth-inductor compass has two dials. On one (lower right), the pilot sets his course. By keeping the needle of the other dial (center) on zero, he knows that his plane is not deviating from the right track (see, also, text, pages 372, 374).

Before 6 a. m. the storms that had dodged us made a fresh onslaught. This time they were reënforced by lightning and cut open the rain clouds. More bumps, lashing rain, chopping gusts!

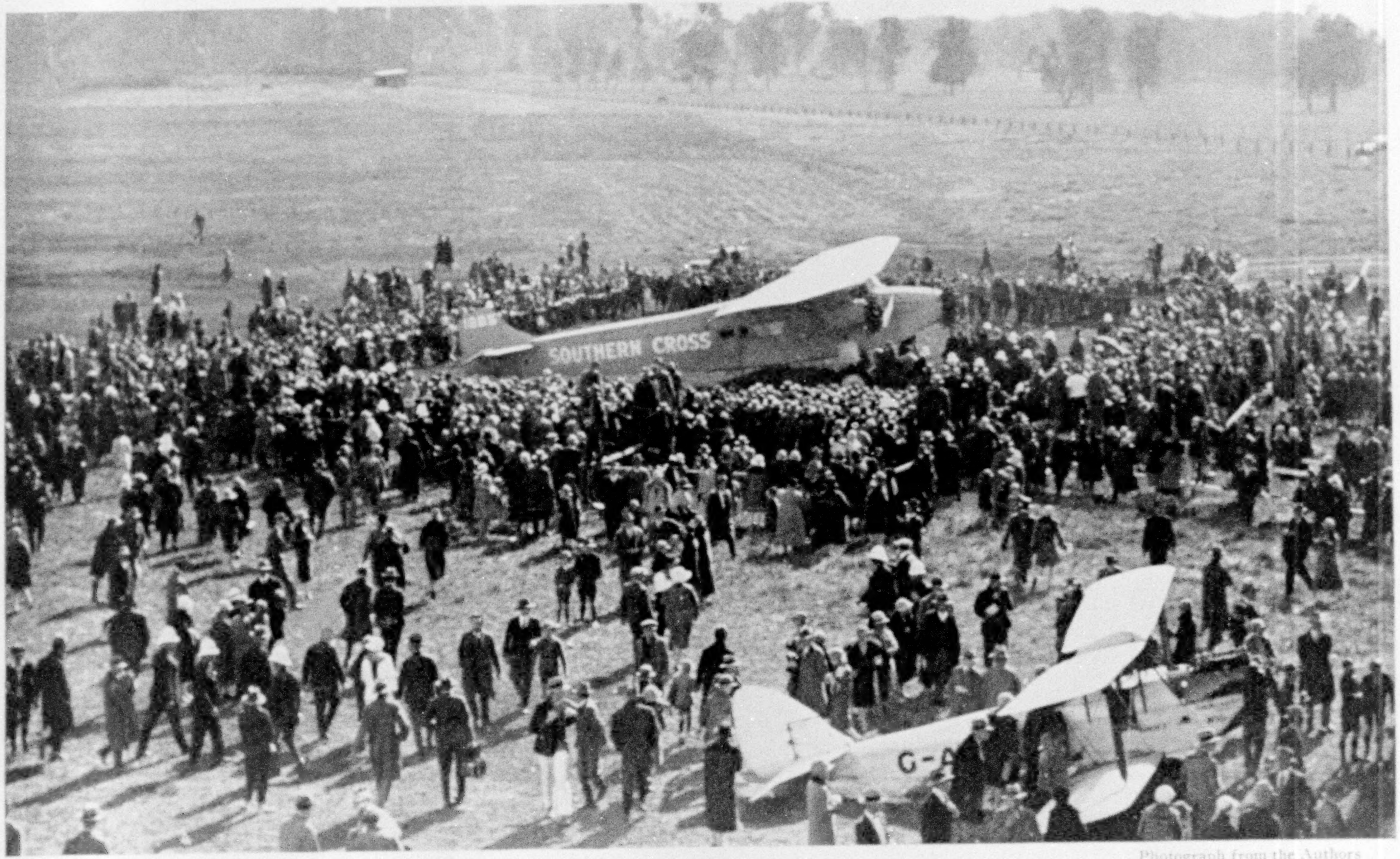
It was a battle with the clouds, forcing us to fly as low as 400 feet. Once more we were in a cloud dungeon and flying blind. This continuous climbing, of course, increased our gasoline consumption. Just before the dawn we had a somewhat tense conference over the gas.

Smith thought that after all the dodging of rain squalls that we had done the gas would fail us just before Suva. Ulm was the optimist, and was convinced that it would see us through. Actually we had seven or eight hours' gas left.

But there was nothing roseate about the dawn that we faced. It rained hard, it blew hard, and the cold bit into our feet in the cockpit.

HEAD WINDS CUT DOWN SPEED

Seven o'clock saw us flying blind again. Eight o'clock saw us bucking into a headwind that swung and chopped. Nine o'clock saw us still fighting the wind, scurrying through the rain and getting many a jolt. Our rosy hopes of making Suva had faded a little. We felt sure that we would reach land, but the odds seemed to be swinging against Suva. The headwind whipped up with greater force, and Ulm instructed Warner to send out our position on short wave regularly.



SOUTHERN CROSS
G-A

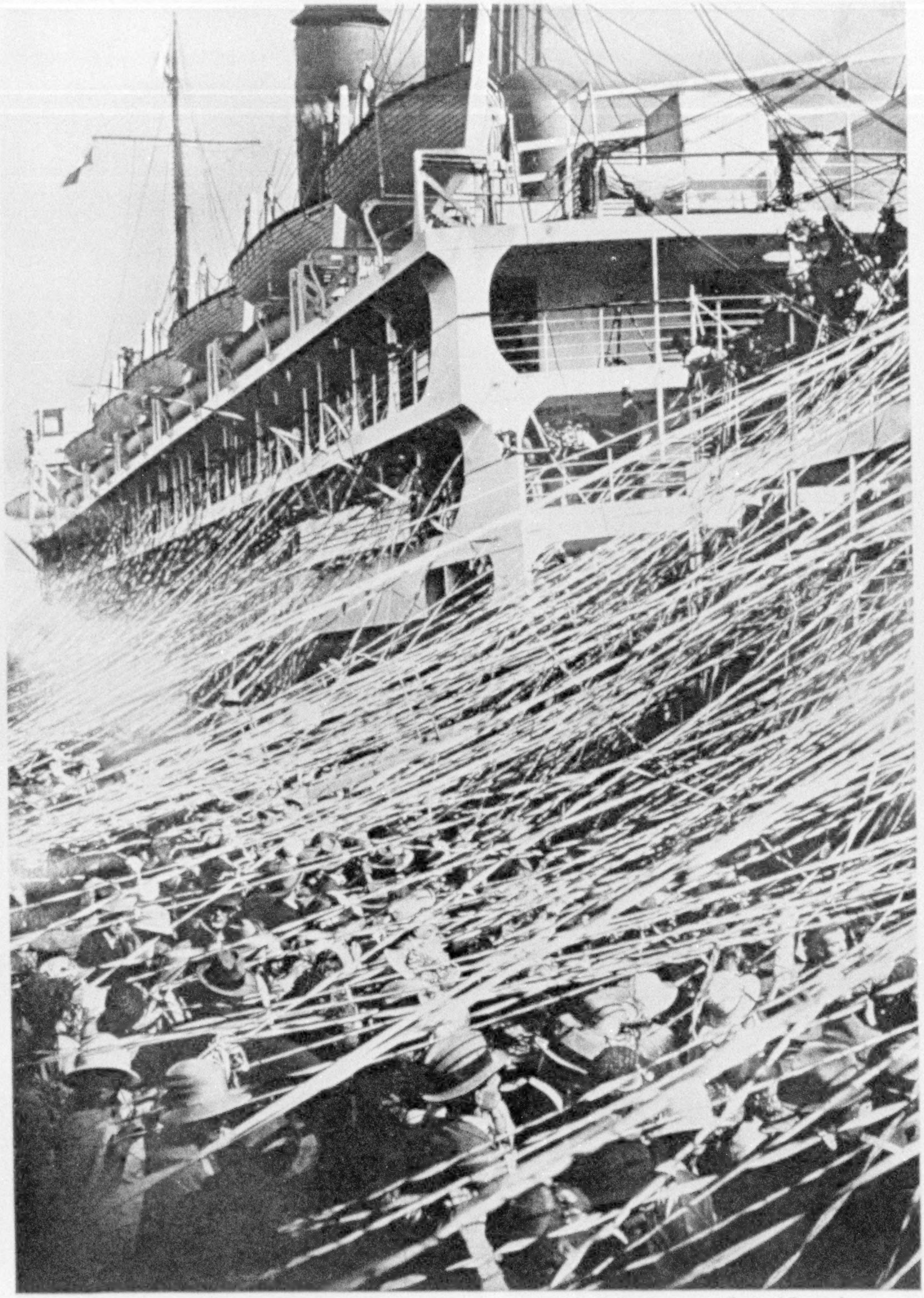
Photograph from the Authors

BRISBANE WAS THE FLYERS' FIRST OBJECTIVE IN AUSTRALIA

Photograph from the Authors

LEAVING THE AIRDROME AT BRISBANE

This busy capital of Queensland forgot all about coal and sheep, and the export of hides, meat, and tallow, in the excitement of being the first Australian city to welcome the transpacific flyers (see, also, text, page 401).



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IT'S A LONG SEA RIDE FROM SYDNEY TO LONDON

Remote as Australia is from England, commerce and cultural relations are close and travel is constant. A carnivallike scene on the steamship *Ormonde*, as friends say good-bye to passengers leaving Sydney for the long voyage to the British Isles.

Ten o'clock saw us ready to whoop for joy—if the whoops could be heard above the engine racket. We decided to hand-pump gas from the main tank to gravity, and found that we had seven hours' supply left. We had been 30 hours in the air. Smith had flown the machine 17 hours, and Ulm for 13 hours.

Then, after three uneventful hours, came the dramatic sighting of the Fiji Islands and the proudest moment in our lives. Ulm was at the controls. Smith was dozing. Ulm was not expecting land at that moment, when suddenly, far ahead on the starboard bow, a small brown dome sprung up from the sea. Ulm swung the plane for it. The oscillation woke Smith. He thought Ulm had fallen asleep at the controls. His language was forcible and full of color. Two minutes later the sea sprouted land on every side—purple and green islands girt by ribbons of surf.

Rain smudged out the picture for us as we glided over Koro Island, the last of the series before our destination.

In mid-afternoon, June 5, we landed at Albert Park, at Suva, having covered a point-to-point distance of 3,144 statute miles in 34 hours 30 minutes.

LANDING AT SUVA IS DIFFICULT

We had previously arranged with the local authorities at Suva to remove the telegraph wires at the northwestern corner of this ground, and our old Flying Corps friends, Maj. Clive Joske and Capt. Samuel Ellis, had distinguishing marks out long before we arrived. This was undoubtedly the most difficult landing we have had to make since we have owned the Fokker.

The ground was barely 400 yards long, and after 34 hours' flying one is not as keen as one should be. Kingsford-Smith handled the controls at the landing, and as there was a drop of about 10 or 12 feet from the road to the surface of the field itself, he brought the machine in over the road, doing about 65 miles per hour (see illustration, page 387). At the end of the field was a sharp rise covered with trees and undergrowth.

For a few seconds it looked as if a crash was certain, but just as we approached this rise we could see that there was room to swing to the left, and Smith ground-looped the machine at exactly the right moment and we finished our run without any strain to the machine whatever.

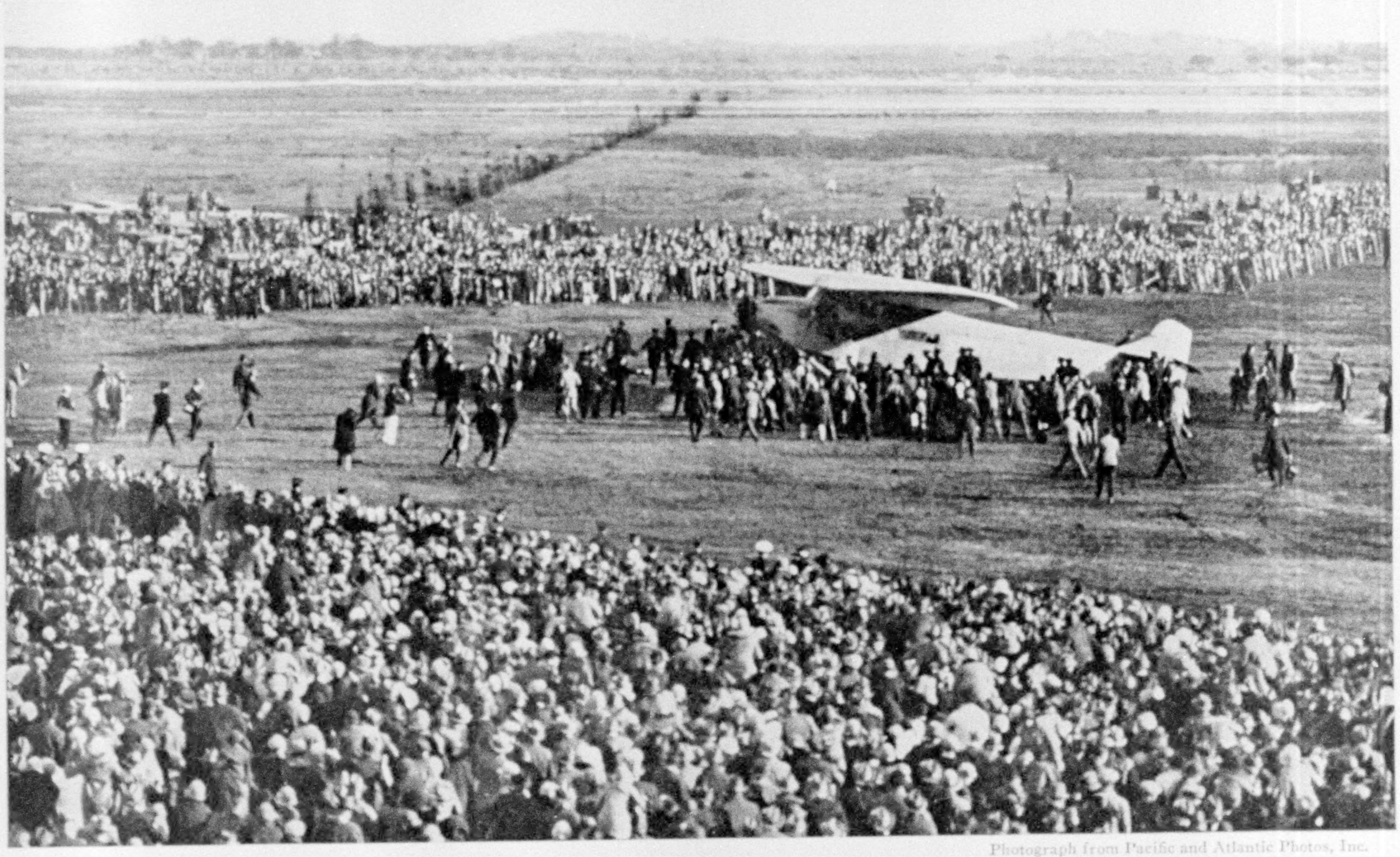
We were all stone deaf from the continuous roar of the motors in our ears, and could not even hear the cheers of the crowds. The Governor of Fiji, Sir Eyre Hutson, and Mayor Marks officially welcomed us (although we could not hear a word of what they were saying), and we were motored across the field to the Grand Pacific Hotel, where we were entertained as the latter's guests.

We were dead tired, and immediately had a hot bath and went to bed. We two slept from 4:30 to 12:30 a. m. We were still partly deaf when we awoke, but had a cold meal and another shower and felt better. We did not feel much like sleep then, so spent an hour or so opening hundreds of congratulatory cablegrams received from all parts of the world, and then, in the warm night air, took a walk over to see how the good old *Southern Cross* was faring. There was a guard of native constabulary over the machine, and although they undoubtedly recognized us, they would not allow us to enter the barriers and have a look around. This satisfied us that the machine was being carefully looked after (see page 389).

We returned to bed about 4 o'clock, and divided our duties next day—Smith going to inspect a possible take-off at Naselai Beach and Ulm inspecting two grounds nearer the city, both of which, by the way, could have been made satisfactory had Naselai proved unsuitable. Smith returned with a favorable report from Naselai Beach, and we were entertained that night at the Governor's ball, where a whale's tooth — the symbol of the best wishes possible for a Fijian to pay—was presented to Smith on our behalf by the oldest living Fijian, Ratu Joni Mataitini, who is a member of the Fijian Legislative Council.

FINE WEATHER FAVORS FIJIAN TAKE-OFF

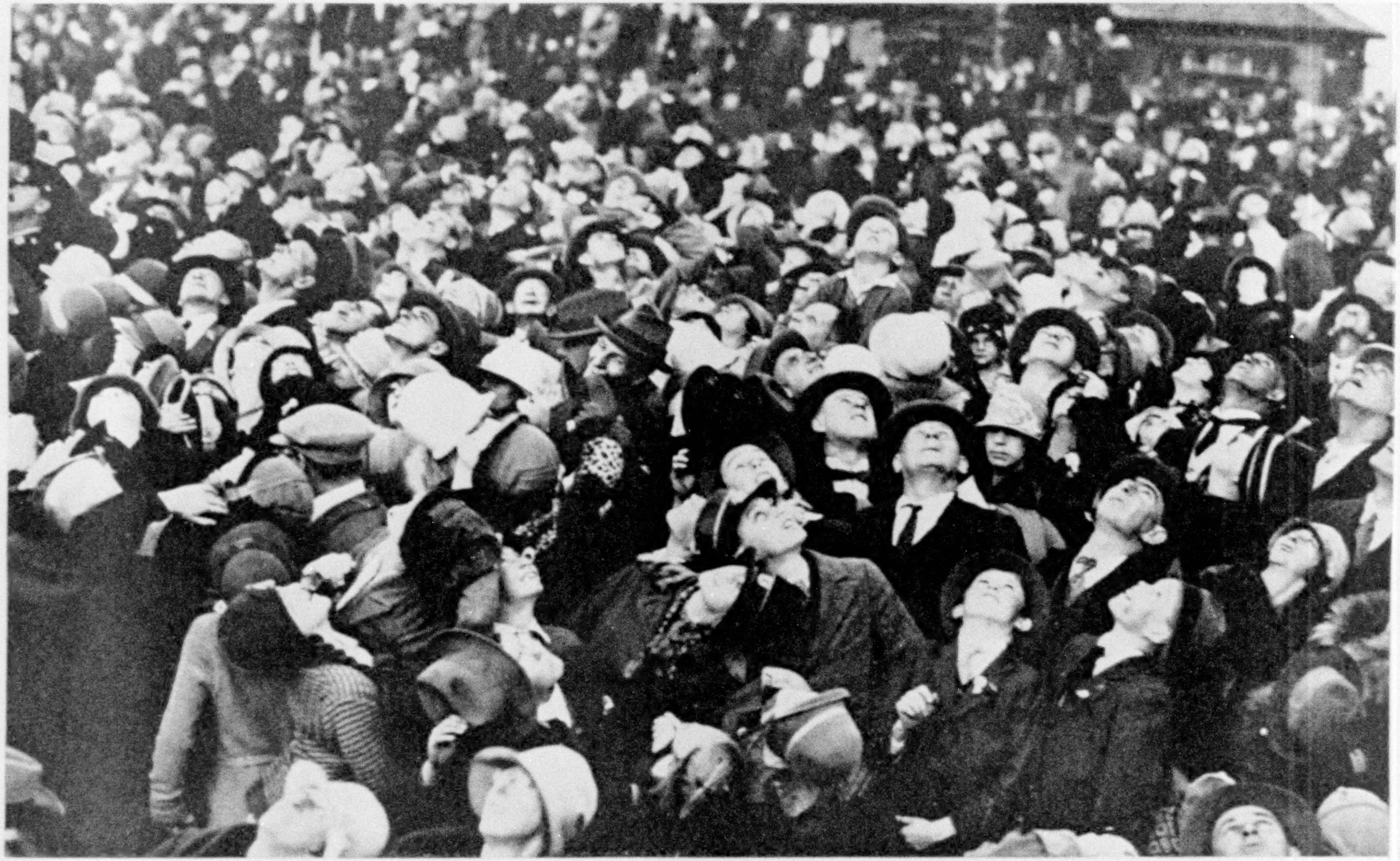
Early the next morning, the Government steamer, H. M. C. S. *Pioneer*, carried 900 gallons of gasoline over to Naselai Beach. We took off in the *Southern Cross* and landed there just about noon. A troublesome surf hampered the operations of the *Pioneer*, and difficulty was experienced in taking the full barrels of gasoline ashore.



Photograph from Pacific and Atlantic Photos, Inc.

SYDNEY'S MILLION TAKE A HOLIDAY

Over the incomparable harbor of Sydney and its miles of quays and wharves, over a botanical garden of strange exotic plants, and over all the magnificent public buildings that help make this magic Australian city, flew the *Southern Cross*. At Mascot Airdrome the plane came to rest, ending its long, dangerous flight from California (see, also, text, page 401).



Photograph from the Authors

"HERE SHE COMES!"

For centuries man's gaze was flat—out to sea, across the desert, or to far bends in hill trails; but to-day he also looks up, for visitors may come by air. A Sydney crowd spots the *Southern Cross* over Mascot Airdrome.

Photograph from the Authors

WHEN A KANGAROO IS CAGED HIS TAIL SERVES AS A HANDLE

While in Australia, Warner and Lyon, American members of the crew of the *Southern Cross*, were presented with a pet kangaroo. He was put in a wooden cage for shipment to the United States.

This delayed us for a few hours, and as the tide was again rising, we decided that it would be a great risk to endeavor to take off that night. Hence we decided to leave it to the next day.

It was indeed a quaint sight to see the *Southern Cross* being manhandled on the beach by hundreds of willing natives.

We took off from Naselai Beach at 2:52 p. m. on June 8 in beautiful weather, with a dead cross wind of about 17 miles per hour. Twelve minutes later we said good-bye to Suva. Its white roofs gleamed in the sunlight, and its streets and parks were thronged with cheering people. We were all in excellent spirits.

Our one disappointment was that the earth-inductor compass was out of action. It proved to be probably the most valuable instrument we carried, and its failure to function on this last stage of our flight was our own fault. Both at Honolulu and Suva the Pacific Scientific Company kindly cabled us full instructions for servicing this compass. Possibly the only mistake we made during the whole flight was that, during our work at Naselai Beach, we completely forgot to oil this instrument.

We flew by the steering compasses. Lyon feared that these were inaccurate, because small metal objects that would affect them had been placed in the navigating cabin. We greatly missed the earth-inductor compass. Had it been functioning we believe we would have hit Brisbane accurately, and not have struck the Australian coast some hundred miles off our course. However, the aperiodic and steering compasses practically agreed, and we had no cause for disquiet.

Feathery clouds hung above us, but it looked clear ahead. Lyon took our bearings on the sun, and although one compass was still out of order, the port radio generator, which had been a little capricious, was again working well.

FLYERS DON FUR-LINED OVERALLS

Behind us in the purple dusk trailed a livid, bluish flame from the exhaust pipes. It had been our stern light on the tranquil, tropical night before we reached Honolulu. The exhaust always spat a certain amount of fire, but it was at night that it looked most impressive. Darkness closed in on us, and the glowing warmth of the Fijian night was now no more. There came a keen bite in the air, and we shuffled back into our fur-lined overalls. We climbed to 4,300 feet in a hushed, starlit void. We had not faced a night on the trip that held such promise of kind conditions. Yet we were to be ruthlessly disillusioned.

There seemed menace ahead after 8 o'clock. It grew steadily colder. Gusts bumped us a little. The stars were gone, and the cloud fringes trailed ahead. Then, soon after 8:30 p. m., the storm leaped on us in its fullest fury. One after another, rainstorms charged at us. Their battering on the windshields increased. There was no lull. We flew in a black void. Raking winds jolted the plane. It lurched and plunged and dropped and slid. But always it drove steadily ahead. It was the supreme test of engines and skill in blind flying. Again we had lost the world in the thick murk of storm.

We battled on through hissing walls of water. The rain never let up. It burst in cascades through the windshields, and Smith and Ulm got very wet for the second time on the flight. We rose to 7,800 feet, but the battering by wind and rain gave us no respite. We could not get out of it.

THE "SOUTHERN CROSS" TAKES A BUFFETING

The bumps were severe. The plane bucked wildly and became difficult to control. The jolting got so bad that for a time before 11 p. m. it took the combined strength of Smith and Ulm at the wheel to hold her level. The cold became intense, and Ulm's hands were so numb that he could hardly write up the log book. We were eight hours out from Suva. Smith had had the controls for five and a half hours and Ulm had flown for two and a half hours. It was nearly midnight before that first merciless storm waned.

In the next four hours, other less severe storms swept down on us, and we had to dodge up and down between 500 and 9,000 feet, with more patches of blind flying.

At 9,000 feet it was bitterly cold, and we were wet by the rain and miserable, when we finally glided down to 1,500 feet into a warmer layer of air, where we were not dogged by the sweeping rainstorms. Ulm's hands were still too numb to write, and in the last 1,540 statute-mile hop there are fewer entries in the log book than in the earlier part of the flight.

Just as dawn was breaking, at 7:25 a. m., Warner tried continually to pick up a radio bearing from Brisbane, and later we altered our course to 270 degrees (due west). We had definitely broken through the storm barrier, and although we were cold and gloomy after our atrocious night, the wind had dropped and the morning's paleness was creeping upon the horizon and we felt happy again.

AUSTRALIA AND THE JOURNEY'S END

An hour later visibility was excellent, and under an ardent sun the sea glittered like a floor of jewels. We were rushing on to the greatest moment of the flight. It was just 9:50 a. m., June 9, when a great gray shadow began to unroll along the horizon far ahead. It grew solid rapidly and turned to distant violet hills and brown cliffs.

It was the Australian coast! Our goal was in sight! We lived the big moment of our lives.

There it stretched as far north and south as the eye could see—brown hills, surf-scoured sands, and great banks of bronze-green forest. We swung over the coast at Ballina, a town 110 miles south of Brisbane, and turned north along the twisting ribbon of surf for Brisbane.

In a vast semicircle 15,000 people waited our arrival at the Eagle Farm Airdrome, six miles from the city. Some of them had shivered since 3 a. m. in a severe frost. They gave us a most flattering reception. A lady decorated Smith with a garland of roses, and after an official welcome by the Governor of Queensland, Sir John Goodwin, and its Premier, the Hon. W. McCormack, we were driven in a procession to the town hall, through a narrow lane, in a crowd of 40,000 cheering men and women (see pages 394, 395).

On Sunday morning, June 10, we hopped off at 10:15 for Sydney, which we reached after a pleasant run of five hours in glorious Australian sunshine. At Mas-

Photograph from the Authors

"PLEASE, SIR, WRITE YOUR NAME IN MY ALBUM"

Captain Kingsford-Smith makes a youthful autograph hunter happy when, with Pilot Ulm, he attends a civic reception at Longueville, Sydney.

cot Airdrome an amazing sight met our eyes as we looked out of the cockpit. It seemed as if all of Sydney's 1,070,000 people had assembled at the field.

A solidly wedged mass of humanity covered acres on each side of the main hangar. Every road leading to Mascot was choked with automobiles, and a vast army of people, estimated at 300,000, was hurrying to the flying ground on foot. The enthusiasm of our reception was intense, and for three weeks we were fêted morning, afternoon, and night in our home city. After a visit to Melbourne and to Canberra, the new seat of Federal Government, we ended our pioneer flight across the Pacific. Our total ocean-flying time was 83 hours 15 minutes.

Notice of change of address of your NATIONAL GEOGRAPHIC MAGAZINE *should be received in the office of the National Geographic Society by the first of the month to affect the following month's issue. For instance, if you desire the address changed for your December number, the Society should be notified of your new address not later than November first.*

THE GRANITE CITY OF THE NORTH

Austere Stockholm, Sweden's Prosperous Capital, Presents a Smiling Aspect in Summer

By Ralph A. Graves

Author of "Marching Through Georgia Sixty Years After," "A Short Visit to Wales," "The New Map of Europe," etc., in the National Geographic Magazine

"THIS city fairly shines. Has it just had its morning bath?" asked my companion as we walked along freshly swept cobbled sidewalks past innumerable flower-studded squares. We were returning from a stroll of miles along the broad, curving quays of Sweden's seaport capital, so different in their spotless orderliness from other metropolitan water fronts throughout the world.

Stockholm's quays are her front doors, with steps always freshly scrubbed. Under a brilliant summer sun, even the cargoes of many of the harbor's sailing craft, moored in front of Royal Palace, Town Hall, and House of Parliament, glisten, for they are laden with countless cords of silver birch, the city's fuel.

TEDIOUS OF ACCESS BY RAIL

In gorgeous midsummer floral regalia, Stockholm stands faultlessly groomed to receive only a few score American visitors, while other continental capitals, included in customary tourist itineraries, are athrong with thousands from Western shores.

The average traveler does not decide casually upon a trip to Stockholm, nor, unless he comes directly from New York by ocean route, does the American always arrive in the most amiable frame of mind. It is a long, hard journey from Western or Southern Europe to the historic city founded seven centuries ago as a fortress to resist the forays of Baltic pirates.

From Paris, for example, unless one selects the speedy and exhilarating airplane mode of travel, the major part of one day must be spent on the train to Amsterdam; thence there is an all-night journey to Hamburg, then another full day on the train to Copenhagen, and finally, by train, ferry, and train again, a second night is required to reach one's destination.

If the visitor is fortunate in having friends in Stockholm, they will have purchased for 20 öre each (about 5 cents) tickets admitting them to the train platform, so that they can greet their guest as he steps from his sleeping car.

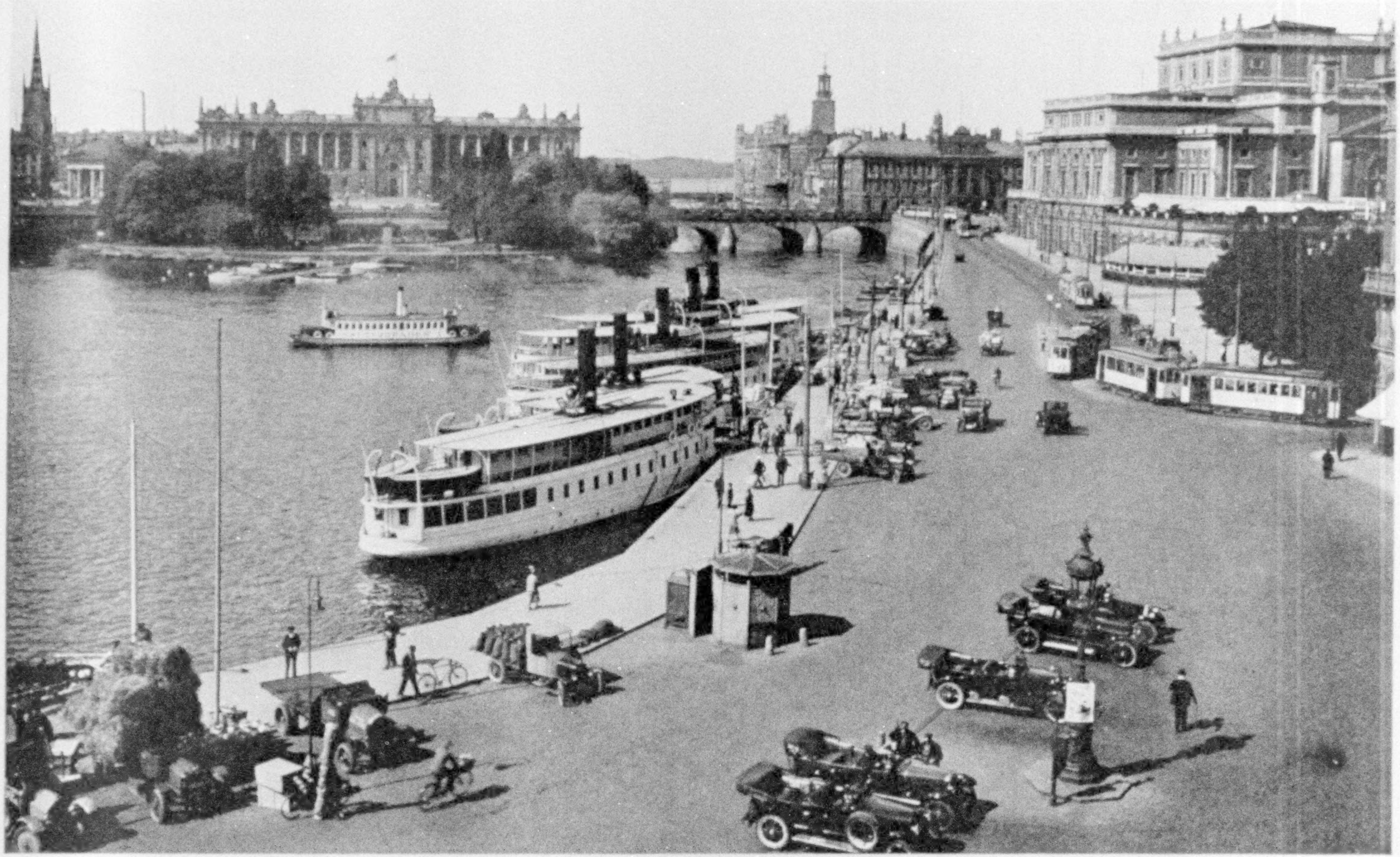
The stranger unfamiliar with the ways of this northern world may leave the station concourse by the door leading to the taxi driveway, and there hail in vain cab after cab, with every driver seemingly oblivious to his existence. He must first obtain from a functionary inside a metal tag giving the order in which his taxi requirements are to be met with respect to all other travelers.

The taxicabs of Stockholm, referred to always as "bils" (automobiles), are legion, and the rates are extremely reasonable; so there would seem to be no necessity for such regulations, except for the significant fact that there is no hit-or-miss service in Sweden.

A CITY OF GRANITE BLASTED FROM ITS FOUNDATIONS

Stockholm's prosperity, like that of the entire country, is founded in large measure on forests—the city's name, Isle of the Log, suggests it—but there is no evidence of this in external appearances. There was a time when the metropolis was built of wood, and it required six disastrous conflagrations, recurring over a period of two and a half centuries, to convince its citizens that their safest insurance against flames lay beneath their feet.

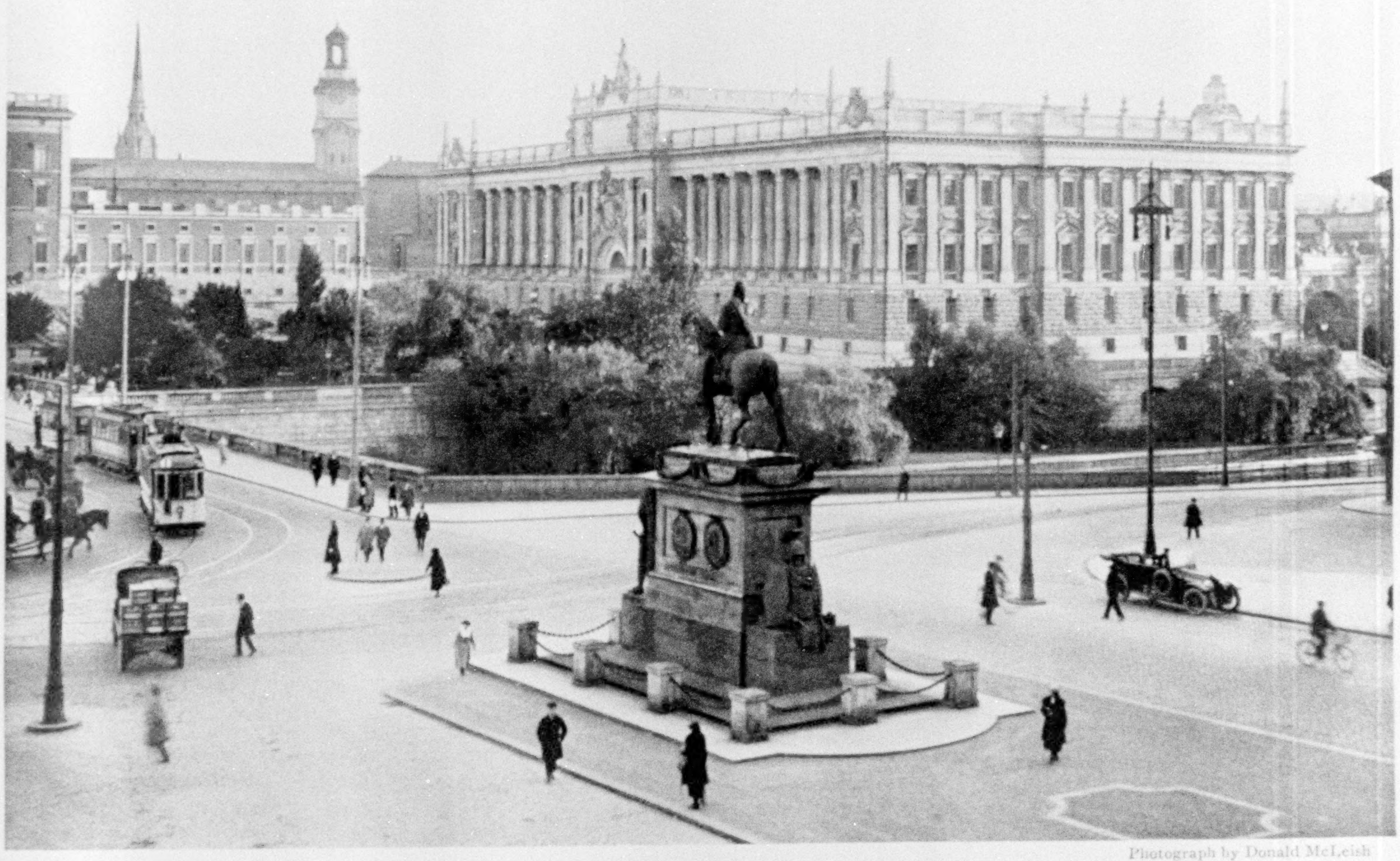
Stockholm to-day is built of granite, upon granite foundations. A landowner blasts his building material from the site of his proposed structure, and by the same operation makes his cellar. The result is a city of somber, unadorned gray-stone apartments and business buildings, conveying the impression of having been erected for eternity.



Photograph by G. Heurlin

STOCKHOLM'S BUSY WATER FRONT IS AS CLEAN AND ATTRACTIVE AS HER FINEST RESIDENTIAL BOULEVARDS

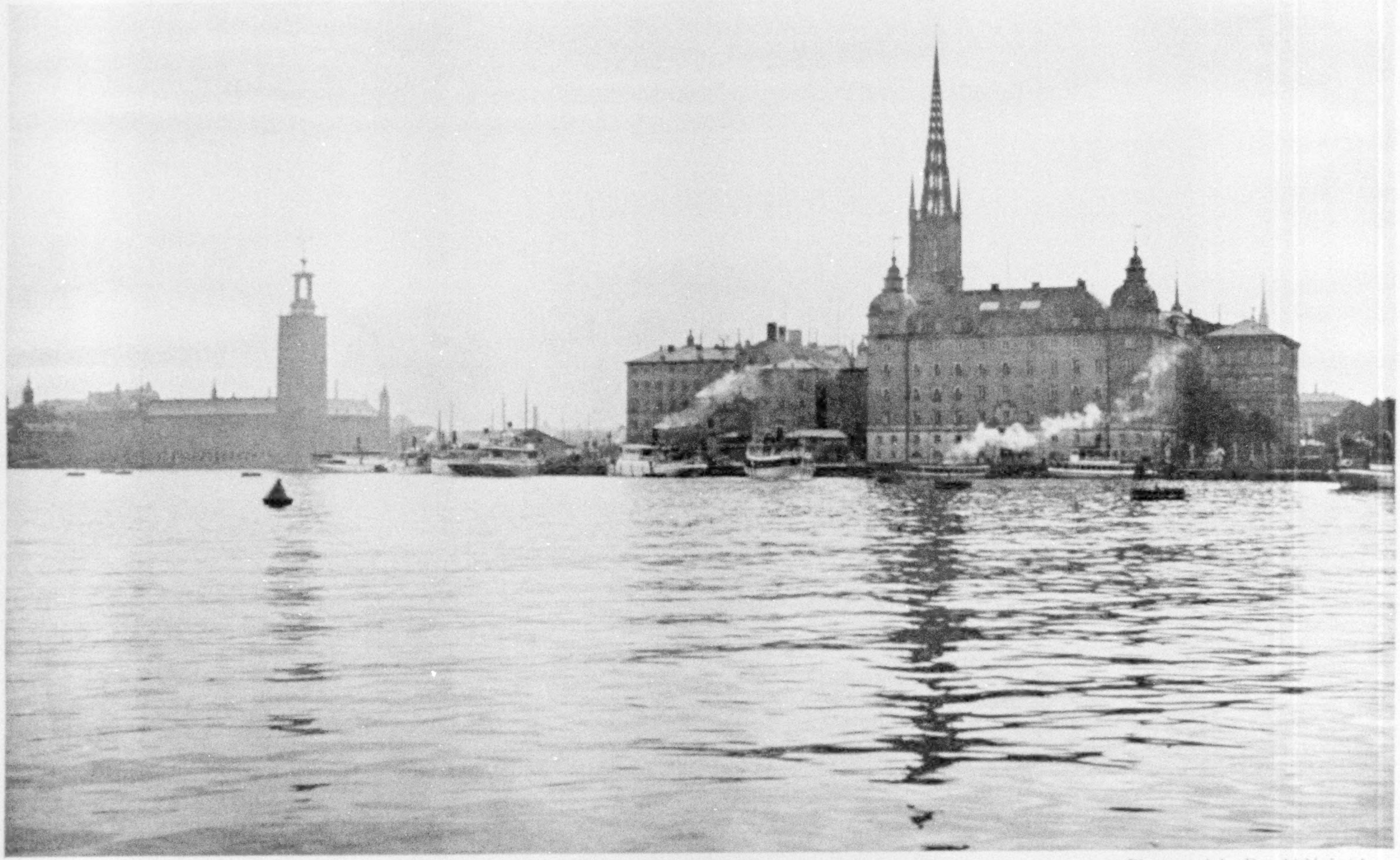
Few great seaports present so pleasing an aspect to the traveler arriving by water as does the Swedish capital. There are no enormous, dingy warehouses and docks; no fringe of cheap cafés and lodging houses, no ill-smelling quays. Passenger craft and small freight vessels discharge their cargoes in the very shadow of the Royal Opera (right). In the middle distance is the House of Parliament (see page 405), flanked by the lofty lantern of the Town Hall at the right (see page 408) and the tapering spire of Riddarholmskyrkan at the left (see page 406).



Photograph by Donald McLeish

THE HOUSE OF PARLIAMENT, WITH THE GUSTAVUS ADOLPHUS STATUE IN THE FOREGROUND

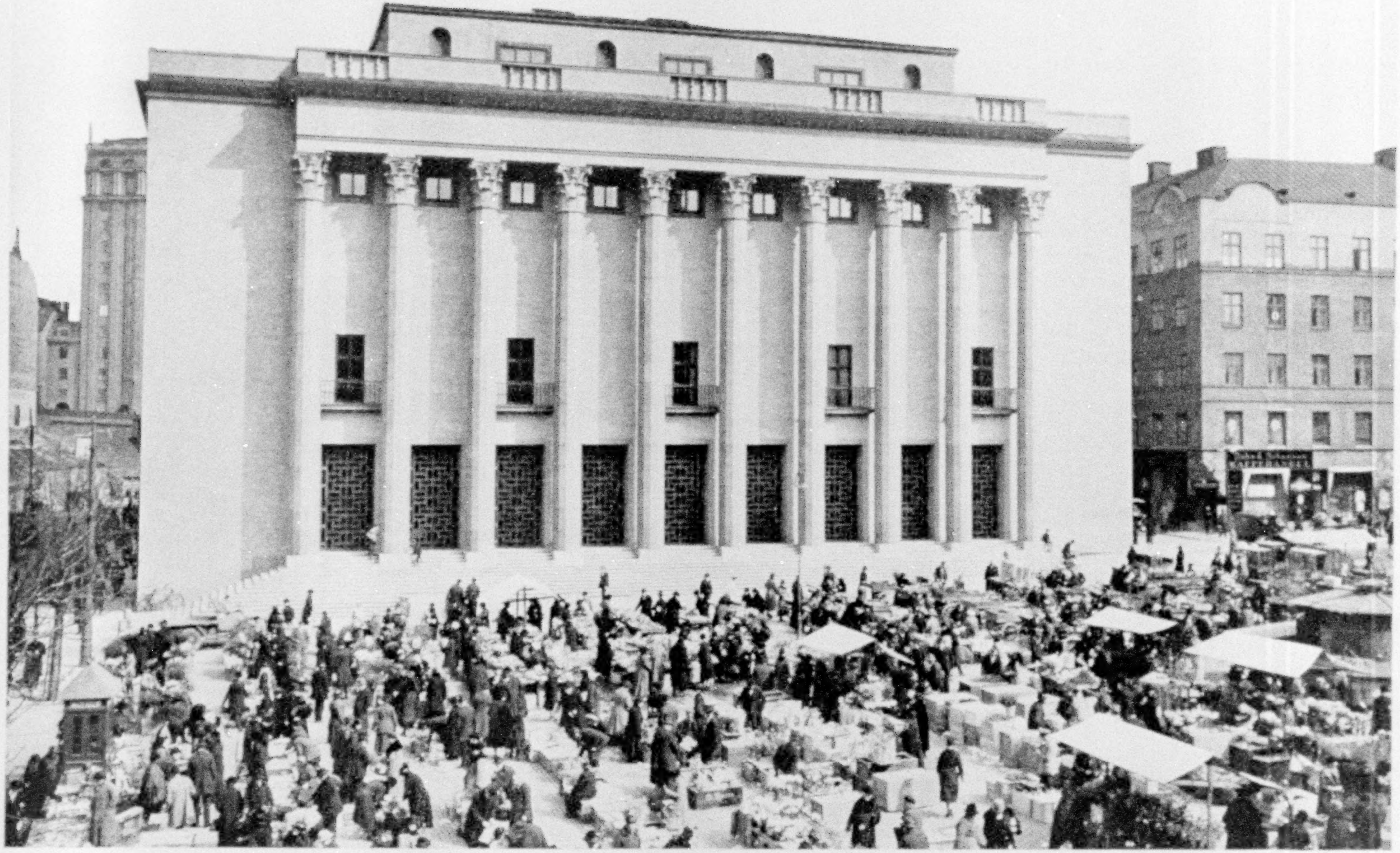
Gustavus Adolphus Torg (Square) is the heart of the Swedish capital. To the left is the Norrbro (North Bridge), leading to the Royal Palace. The Parliament building was erected a quarter of a century ago, at a cost of more than $2,500,000. The square tower is that of Storkyrkan (see, also, page 420).



Photograph by Donald McLeish

SUNSET ON THE WATERS OF LAKE MÄLAREN

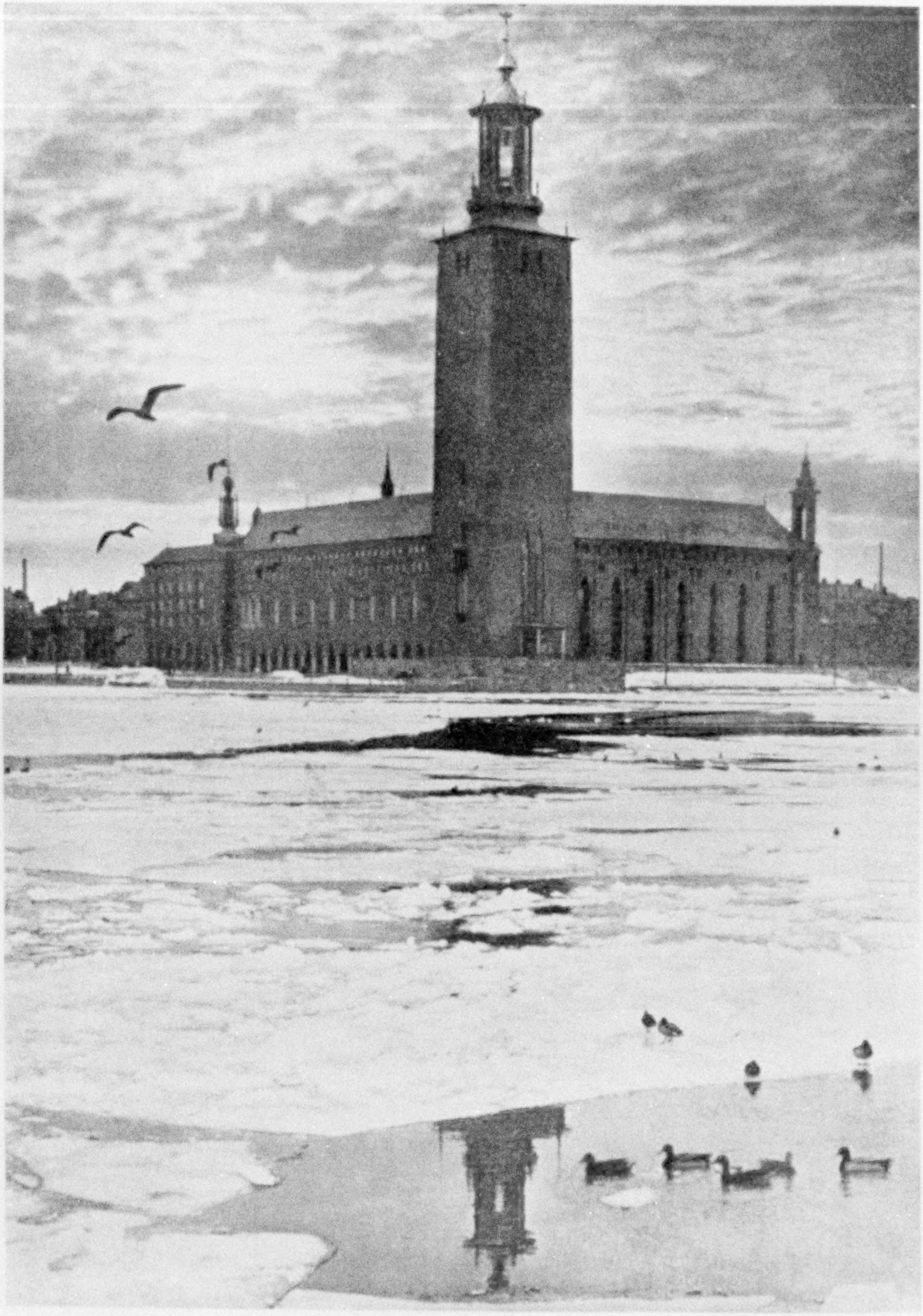
In the distance, to the left, rises the Town Hall, and on the right the spire of the Riddarholm Church, Sweden's Temple of Fame, burial place of her kings and heroes. Here lies the nation's greatest monarch, in a sarcophagus whose sole inscription is: "Gustavus Adolphus Magnus." Close by rests at last that roving, restless military genius, the youthful Charles XII. In an adjoining chapel sleep those who have ruled Sweden since Napoleon's marshal, Bernadotte, established the present dynasty. The church is paved with tombstones.



Photograph by G. Heurlin

THE EYE ACCUSTOMED TO CLASSIC ARCHITECTURE DOES NOT READILY APPRECIATE THE SEVERITY OF THE LINES OF STOCKHOLM'S NEW CONCERT HALL

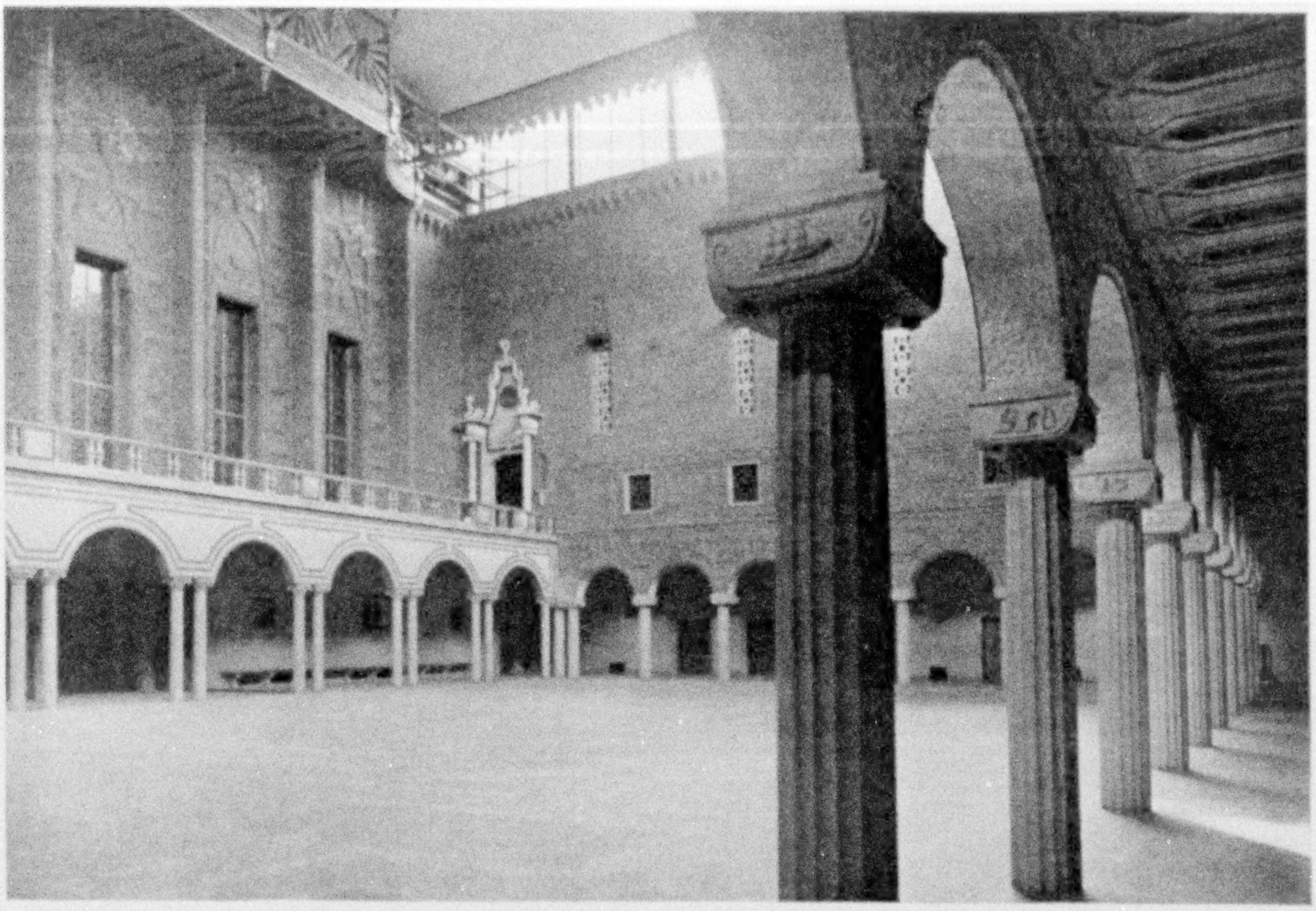
In incongruous contrast to this type of modern Swedish architecture are two 17-story office buildings, of American outline, which face each other across one of Stockholm's principal business thoroughfares, and in the same block with these *grattes-ciel* (skyscrapers) the Western traveler is startled by a familiar Yellow Cab taxi stand. In front of the Concert Hall is the Swedish capital's great flower market, which, in the early morning hours of July and August, presents one of the loveliest pictures to be found in Europe (see text, page 424).



Photograph by Oscar Halldin

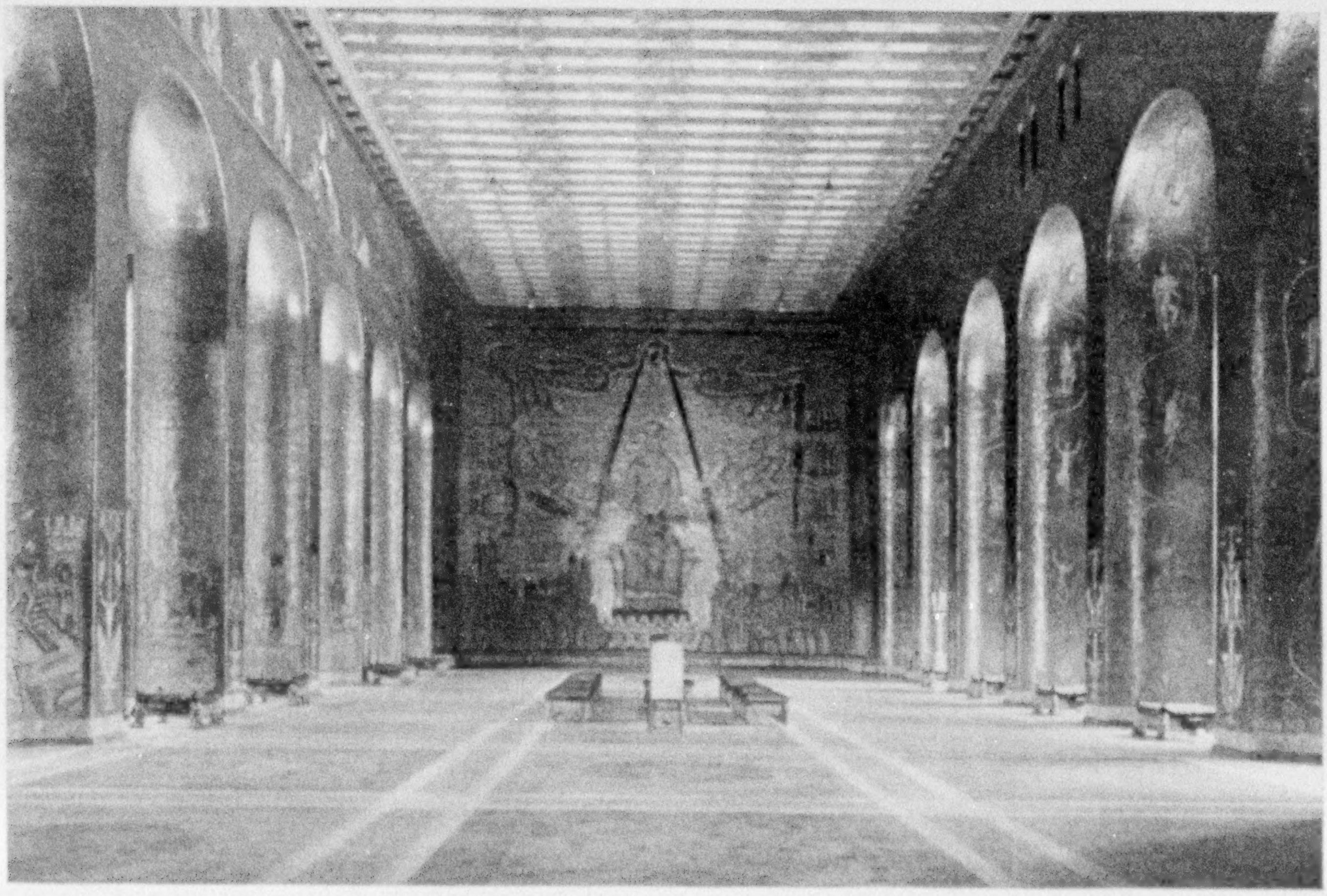
THE PRIDE OF STOCKHOLM AND OF SWEDEN

This magnificent modern structure rises sheer from the waters of Lake Mälaren. Above the lantern capping the massive square tower are the three crowns which appear in the Swedish coat of arms. The hall is a vast rectangle inclosing two courts. The larger (Citizens' Court) is open; the smaller (Blue Room) is covered (see, also, text, page 410). Beneath the cornice of the hall runs a frieze ornamented with gilt reliefs of persons eminent in Swedish history. The building was erected at a cost of about $4,000,000 (see, also, Color Plate VIII, right).



THE VAST BLUE ROOM OF STOCKHOLM'S CIVIC CENTER

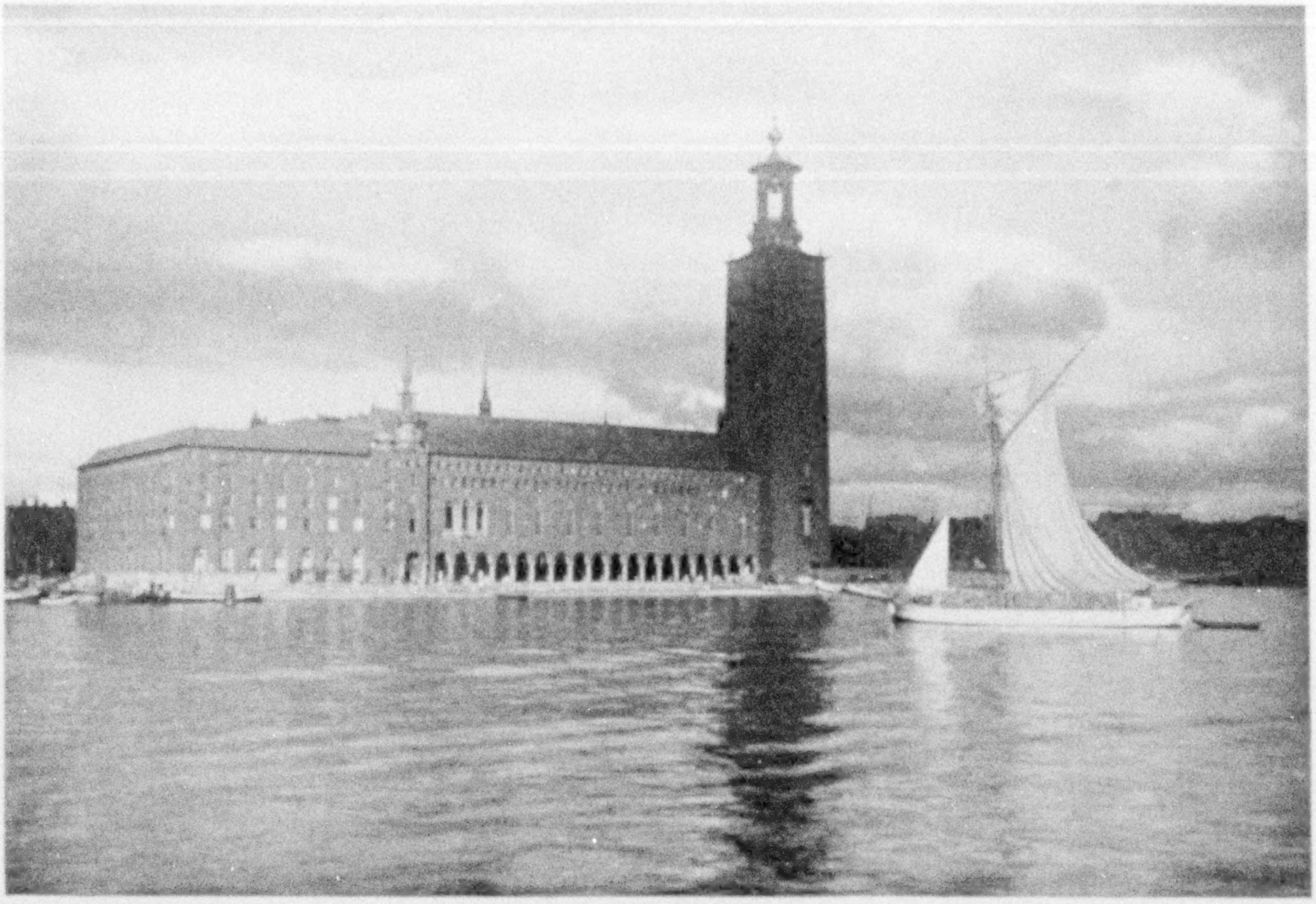
The imposing proportions of this majestic court of the Town Hall adapt it especially to important ceremonies (see text, page 410).



Photographs by G. Heurlin

A HALL OF GLITTERING GOLD

The walls of this unique room in the Town Hall are faced with irregular golden tiles, relieved here and there with bizarre mosaics of Sweden's famous personages. At one end is a pageant of the nations in mosaic, including New York's skyscrapers, American Indians and cowboys. The massive divans of gilt and velvet are an added touch to regal splendor.



Photograph by G. Heurlin

BEARING A CARGO OF BIRCH TO THE TOWN HALL QUAY

Architecturally one enters a new world on reaching Stockholm. No slightest suggestion is to be found of that classical Greek influence so conspicuous in most of the capitals and chief cities of Southern, Central, and Western Europe.

At first, the hard, straight lines of the new Town Hall, with its lofty tower, pride of the nation, and the thin, untapering blue-gray columns of the Concert Hall (see page 407) repel the visitor from lands where architects for generations have created monumental beauty in terms of majestic domes, airy spires, and Doric, Ionic, and Corinthian columns. But in time he comes to appreciate these new edifices as characteristic expressions of Sweden's severe and original standards.

WHEN STOCKHOLM REWARDS ITS ARMY OF LITTLE FARMERS

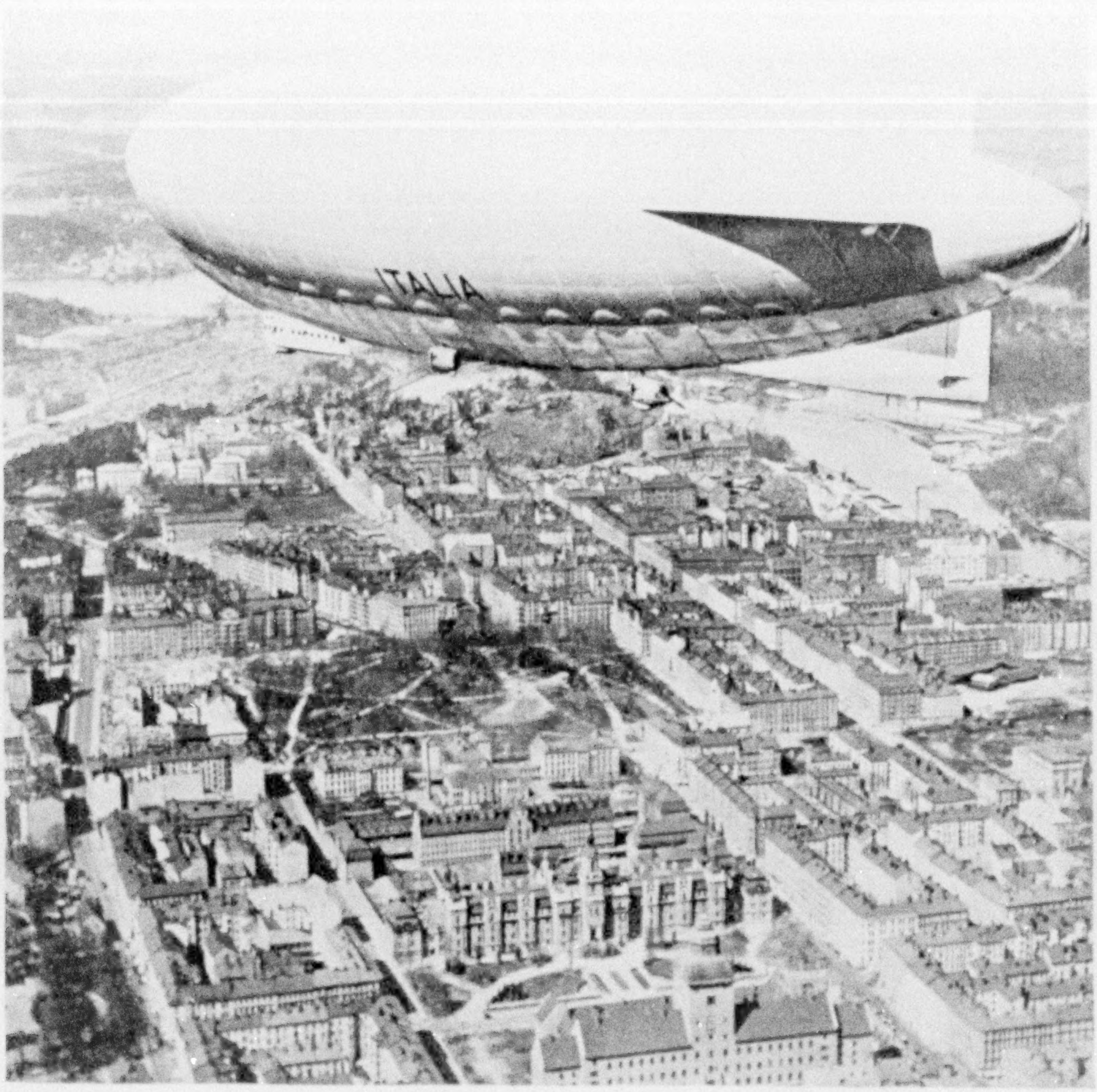
For twelve years Stockholm labored on its Town Hall. It was finished, as planned, for formal dedication in 1923, the 400th anniversary of the beginning of the reign of Gustavus Vasa, Sweden's first hereditary ruler. The copper roof of the building presents an interesting experiment in public-building financing by popular subscription; each of the innumerable small plates bears the engraved name of a donor of 25 kroner ($6)!

The Hall, in contrast to the customary granite, is built of exceptionally large red bricks. Its interior is as impressive as its exterior. On one side of a great inner court is the famous Blue Room, rising from the ground to the full height of the building (see page 409). This is used for official banquets and similar civic affairs.

Here, each year on a Sunday in August, a picturesque event is staged, when awards are made to Stockholm's great army of workmen farmers, one of the most interesting groups to be found in Europe.

The Swedes are noted for their love of the soil and all that it produces, and this passion for growing things cannot be stifled by the circumstance of metropolitan existence; so the city has set aside countless acres of suburban territory for conversion into garden plots, and these are rented to workingmen for the equivalent of $5 for a summer season (see illustration, page 453).

Here the laborer builds a tiny cottage—one room and porch, usually. He can buy a complete house ready-made for $100 and set it up like a jig-saw puzzle. All summer he and his wife and children live



Photograph by Wide World

THE ILL-FATED "ITALIA" FLYING OVER STOCKHOLM

On his journey from Rome to his northern base at Kings Bay, Svalbard (Norway's new name for Spitsbergen), General Nobile piloted his dirigible over the Swedish capital. In the foreground is the Law Courts Building (see page 412).

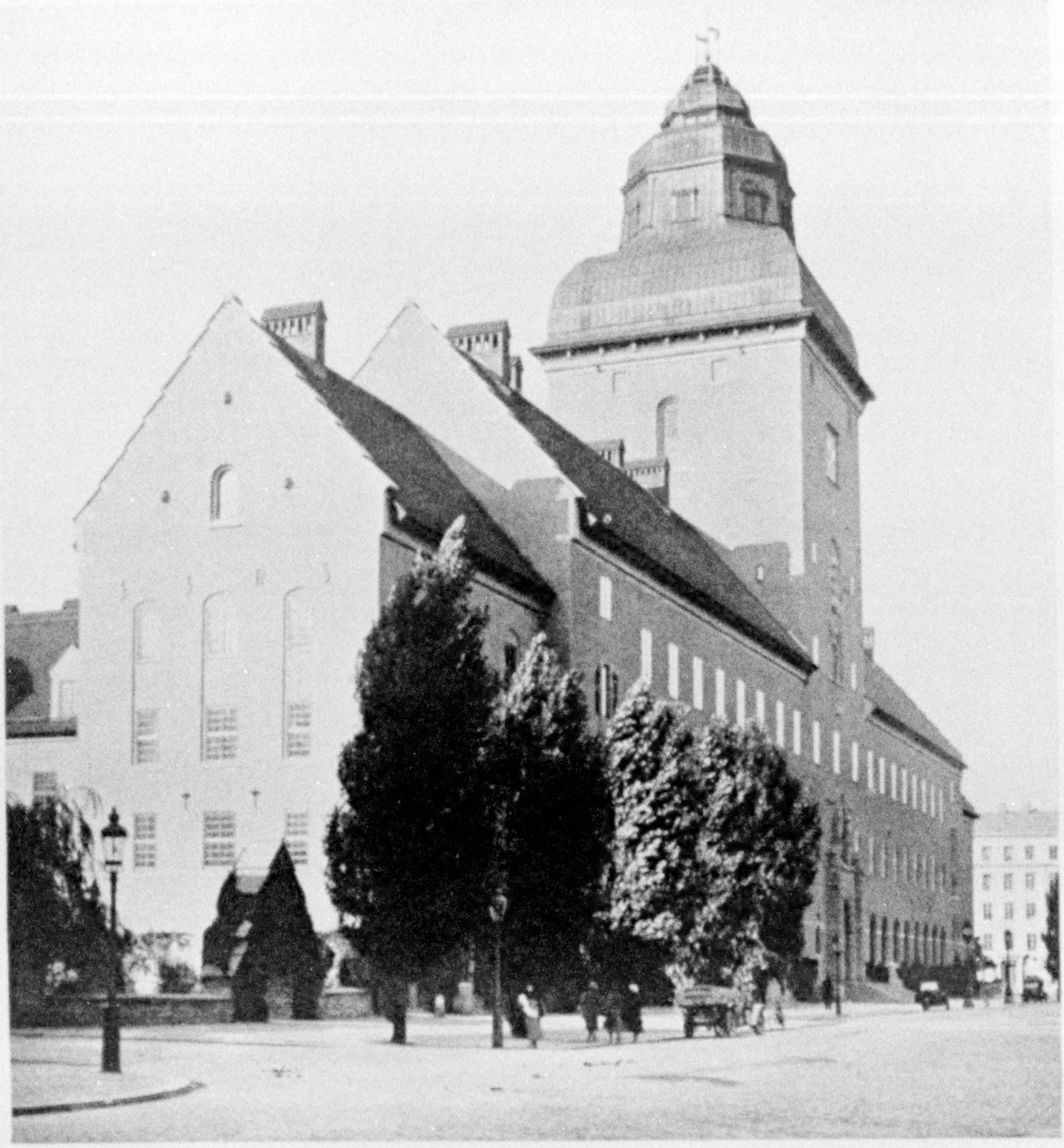
on their "little farm." He continues his work in shipyard or factory, but early in the morning, before he goes to his job in the city, and when he returns in the afternoon, he joins his wife in hoeing the vegetables, training the roses over the doorway, cultivating the dahlias, pansies, violets, and sweet peas.

Toward the end of the summer the housewife is kept busy canning and preserving the produce of her doll-house garden, while the husband concentrates his efforts upon the flowers.

On the appointed Sunday in August each family takes its prize products—blossoms, fresh and canned vegetables, and fruit—to the Blue Room. Here the women, arrayed in the peasant attire of their native provinces (see Color Plates I, II, III, IX, and XIV), display the results of their summer recreation and diversion.

To the winners in scores of classes the city awards prizes which are both munificent and beautiful, and the occasion assumes the proportions of a national fête, with military bands providing concert programs and the costumes making a kaleidoscopic picture in a grandiose architectural setting.

These workingman gardens were introduced during the pinching years of the



Photograph by Donald McLeish

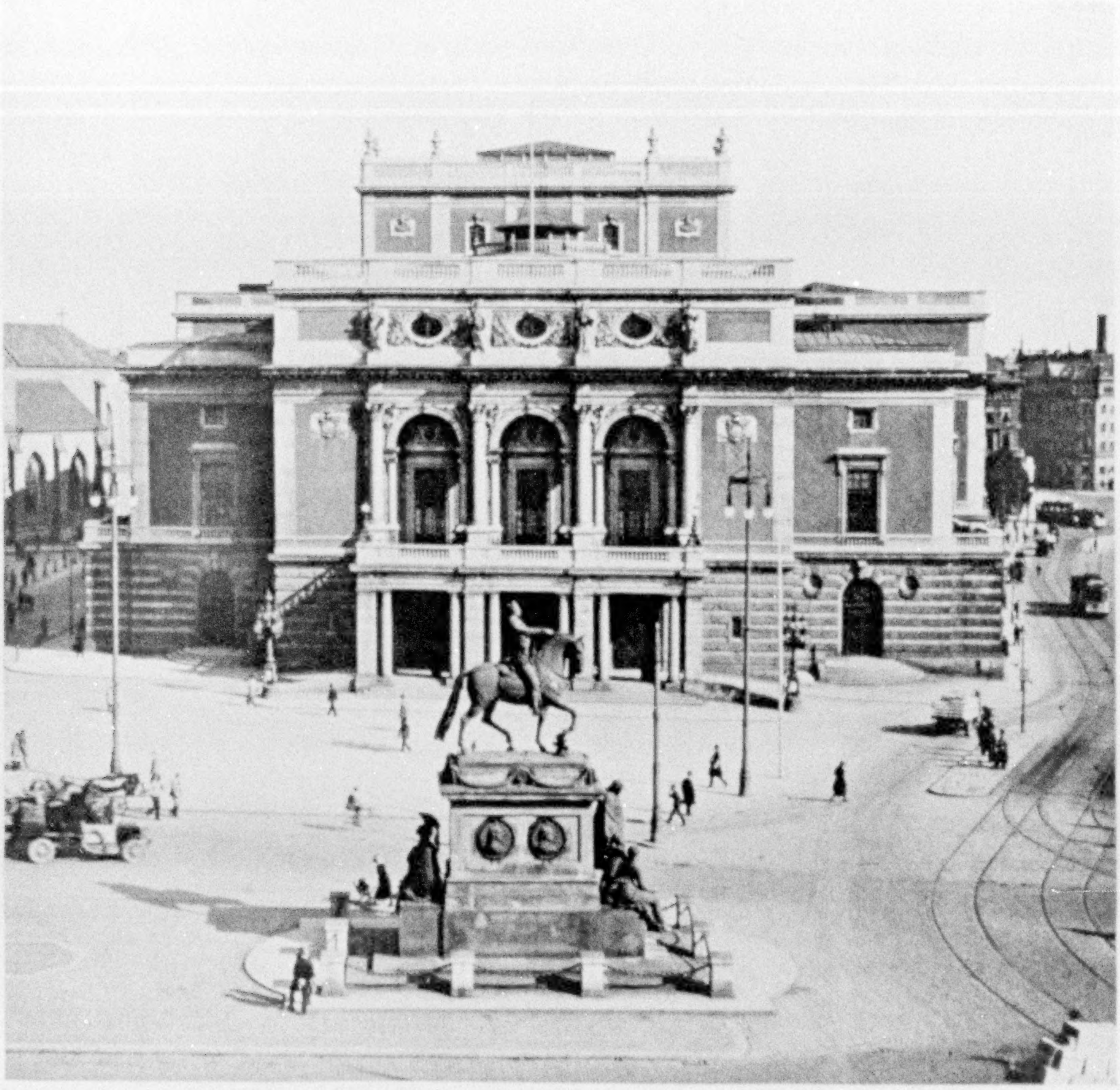
STOCKHOLM'S LAW COURTS BUILDING IS IN THE NEW SWEDISH ARCHITECTURAL STYLE

This brick structure, with its square, copper-roofed tower, was completed in 1915 and was a forerunner of the more pretentious Town Hall (see page 408).

World War, when Sweden was more or less isolated and when all food products commanded fabulous prices.

Although the emergency no longer exists, the gardens are continued, not only because they are financially successful—the vegetables raised each year are valued at more than half a million dollars—but because they have promoted the health and happiness of the working classes and have contributed materially to the attractiveness of the capital's environs. There are no rubbish heaps and no tumble-down-shack districts on the outskirts of this city, but, on the contrary, fruits and flowers everywhere and an apparently contented populace coaxing the soil to yield its utmost during the fleeting weeks of midsummer, when the long hours of sunlight cause plants to grow almost while you watch.

These "little farms" are a special boon to the children of the working classes, who must store up energy for those long,



Photograph by Donald McLeish

WHERE STOCKHOLM HEARS OPERA

The Royal Swedish Opera is well known throughout Europe for its singers, ballet, and scenic decorations (see text, page 423). In the foreground is the statue of Sweden's greatest ruler, Gustavus Adolphus (seen from a different point of vantage in the illustration on page 405).

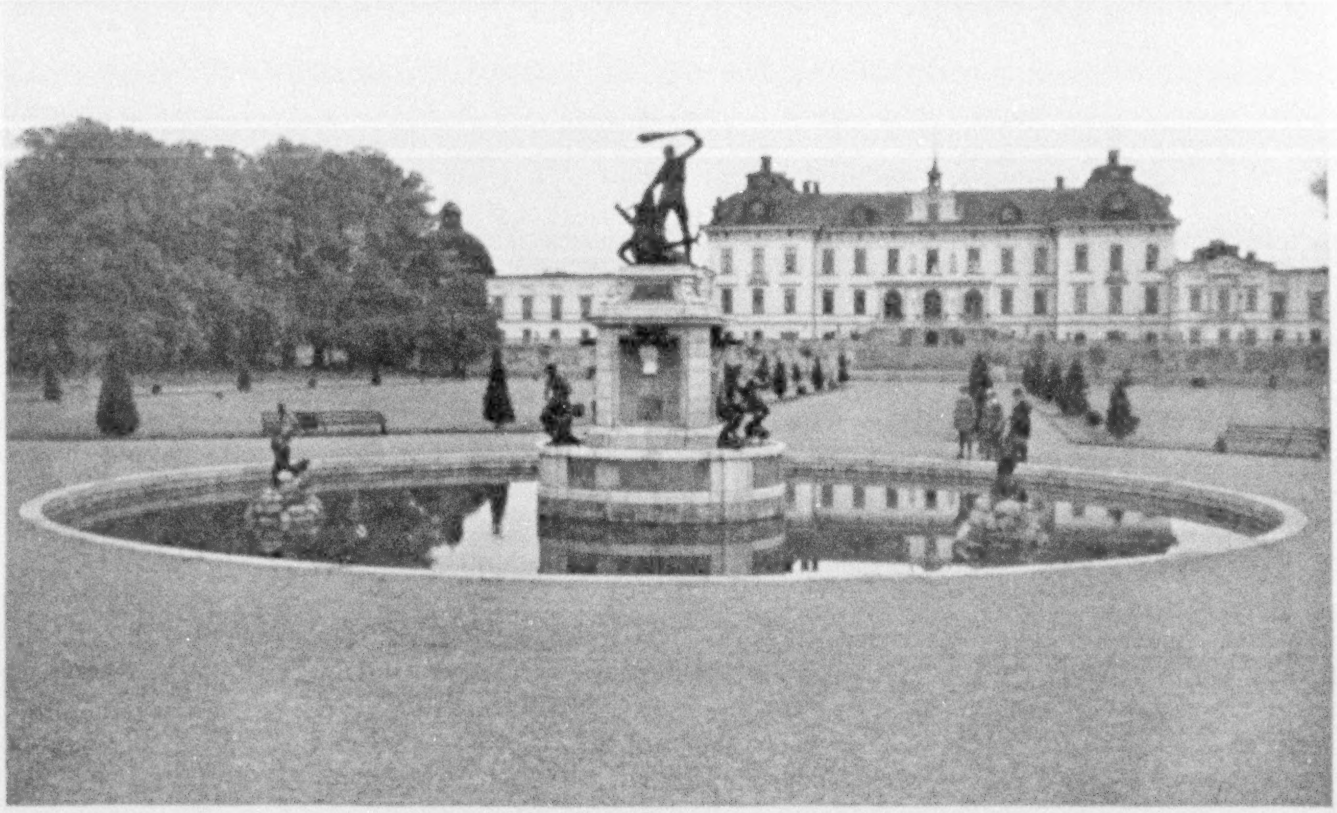
dark hours of fall, winter, and spring schooling. Judged by American standards, the lot of the schoolboy or girl in Stockholm is one of the most unenviable in the whole world of education.

SCHOOL LIFE IN STOCKHOLM

School life begins at the age of six. The hours are trying and Saturday is like every other week day. In winter, of course, the pupil must get up and dress by artificial light, and he starts for school while the street lamps are still burning. He begins his day's task at 7:45; at 10:35 he goes home for breakfast, returns to the classroom at noon, and is dismissed at 2:35 or 3:30, according to his age. In midwinter it is dark at the latter hour.

At home the pupil has numerous writing tasks, especially in the languages—Swedish, German, English, and French. The school year begins on August 26 and ends June 6, with a month's holiday at Christmas and a week at Easter.

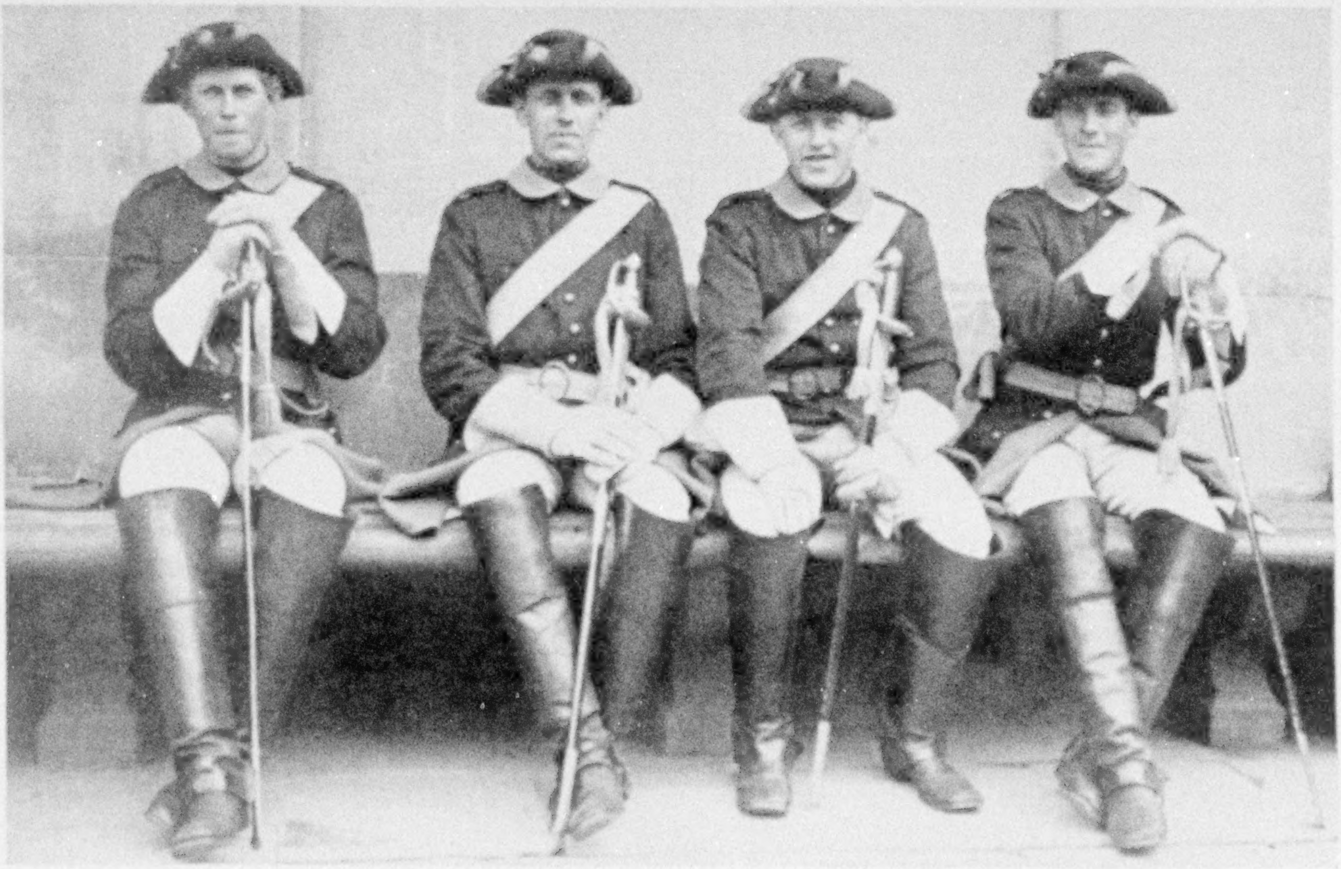
After the first snowfall, children living in the environs of Stockholm make their way to school on skis, even 6-year-old girls being expert in their use. The town boys and girls have the privilege of using the street cars at a special rate—$3.75 for a ticket for an entire term—August to December or January to June.



Photograph by G. Heurlin

THE ROYAL CHÂTEAU OF DROTTNINGHOLM

In summer the king occasionally occupies this castle near Stockholm. It was built in the 17th century and is adorned with valuable works of art. The garden is laid out partly in English, partly in French style and remotely suggests Versailles.



Photograph by Donald McLeish

LIFE GUARDS OF THE KING OF SWEDEN

This uniform of the time of Charles XII is worn by the guards when on duty at the Royal Palace, on state occasions, and during royal visits. A picturesque uniform which no longer greets the visitor to Stockholm was that worn by the city's police force until two years ago. Its distinguishing features were a brass embossed black metal helmet with spike on top, and a long, brass-hilted sword. As Stockholm's police force is composed of extremely tall men, its members presented a most impressive military aspect until helmet and sword were discontinued.

Photograph by Wide World

SWEDEN'S MONARCH CELEBRATES HIS SEVENTIETH BIRTHDAY

Gustavus V, accompanied by Crown Prince Gustavus Adolphus, at his right, and the latter's oldest son at his left, rides out from the Royal Palace to review his troops. Several members of the royal family of Sweden have distinguished themselves in various lines of activity. The king's younger son, William, has lectured in the United States (see Color Plate XIV); Prince Charles, a brother of the king, is president of the Swedish Red Cross and is interested in numerous philanthropic enterprises, while Prince Eugene, the king's youngest brother, is an artist of distinction and a patron of Swedish art, whose palace on the outskirts of Stockholm is notable both for its superb setting and for the canvases which adorn its walls.

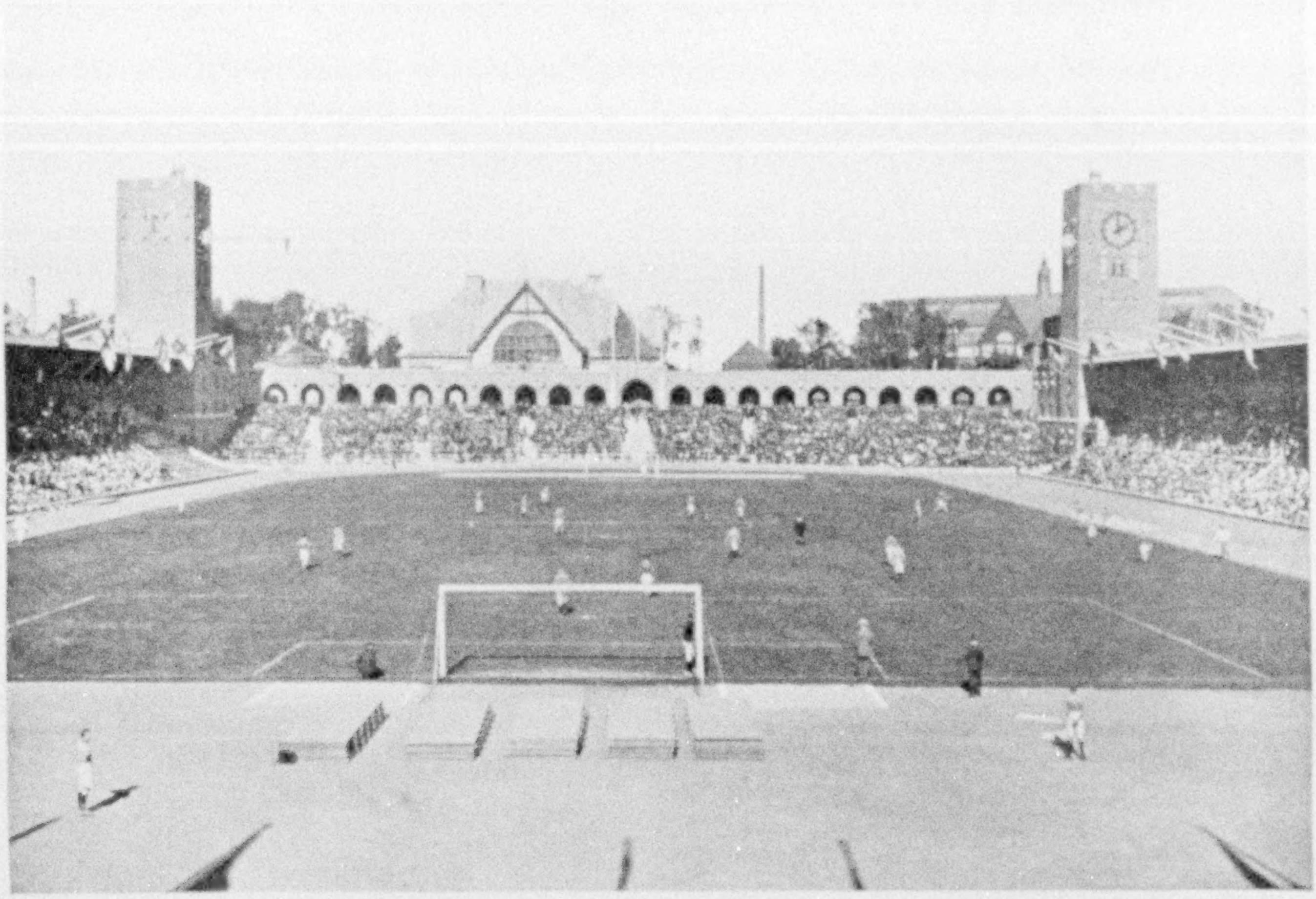
Under such circumstances, it is natural that the children of Stockholm should take their studies somewhat more seriously than children in American cities; yet, when the summer vacation season arrives, no youngsters in the world enter upon their outdoor frolics with greater joy. The children of the wealthier classes accompany their parents to summer homes outside the city, many of them situated on the countless islands which dot Sweden's Baltic shore line; yet even here they pursue their studies in natural history with the zest of a sport. No wonder that it was Sweden which gave Linnæus to science!

On one occasion a high-school student of Stockholm, who was coming to the United States to perfect his English that he might later enter an American technical college, was placed in my charge. His special interest was chemistry, but among his numerous impedimenta, which included such items as a banjo and a "two-year supply" of cigarettes tipped with rose leaves, not cork, was a large package of blotting paper in sheets 10 by 15 inches. These, he informed me, he would use in making a collection of botanical specimens gathered on his holiday rambles in the New World. He had promised to send them back to classmates in Stockholm who were interested in American flora.

SPORTS AND CHANCE IN STOCKHOLM LIFE

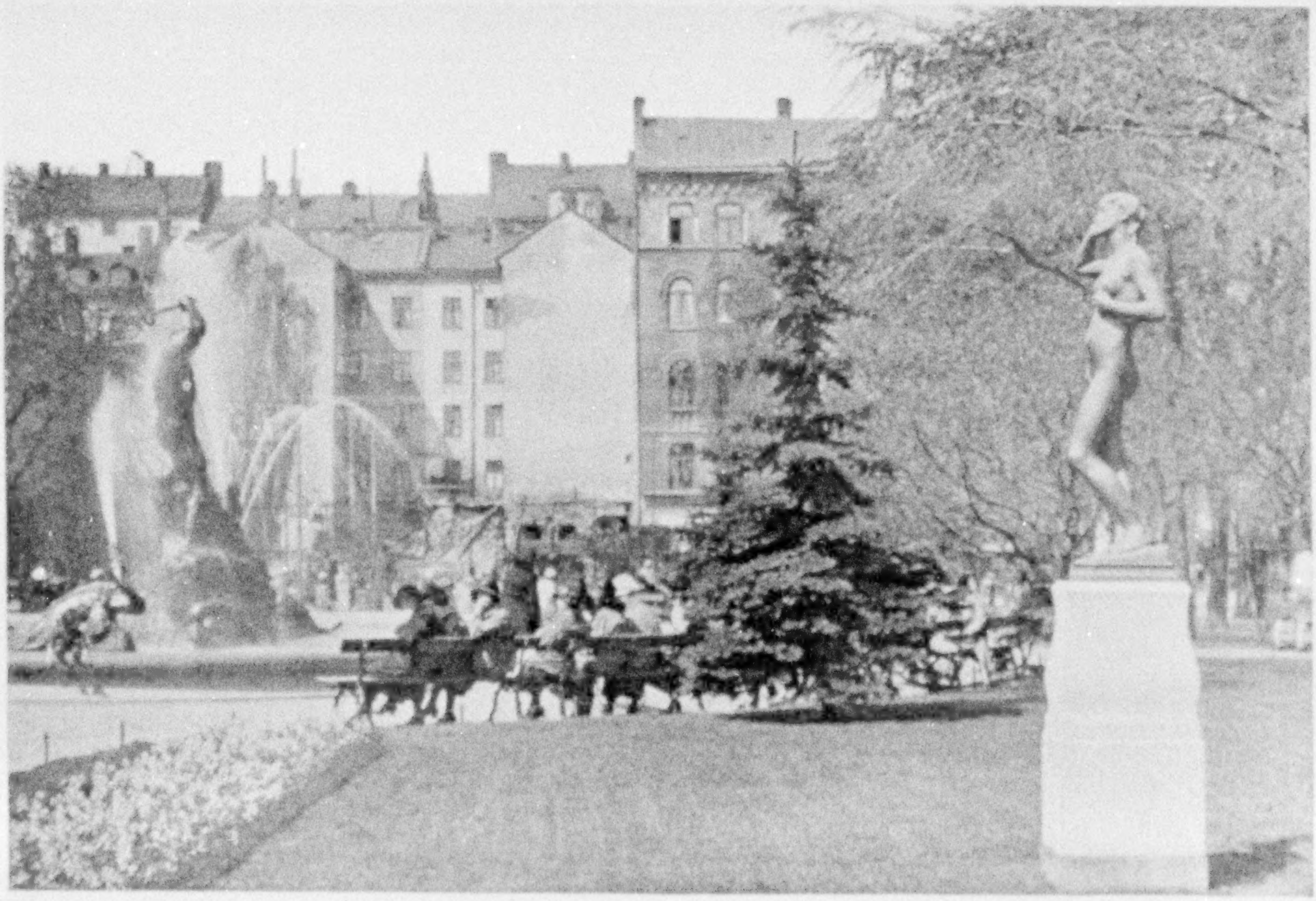
One of the distinguishing characteristics of the Stockholm youth is his fondness for sports, with a special predilection for that most graceful of all exhibitions of skill, javelin-throwing. Association ball (played with a round football), in which the head is used very largely as the propulsive force, is the national sport of the country, while bicycle endurance races, skiing and skating, and boating in summer are also extremely popular.

The famous Northern Games, in which



A FOOTBALL GAME IN STOCKHOLM'S STADIUM, BUILT FOR THE 1912 OLYMPIC GAMES

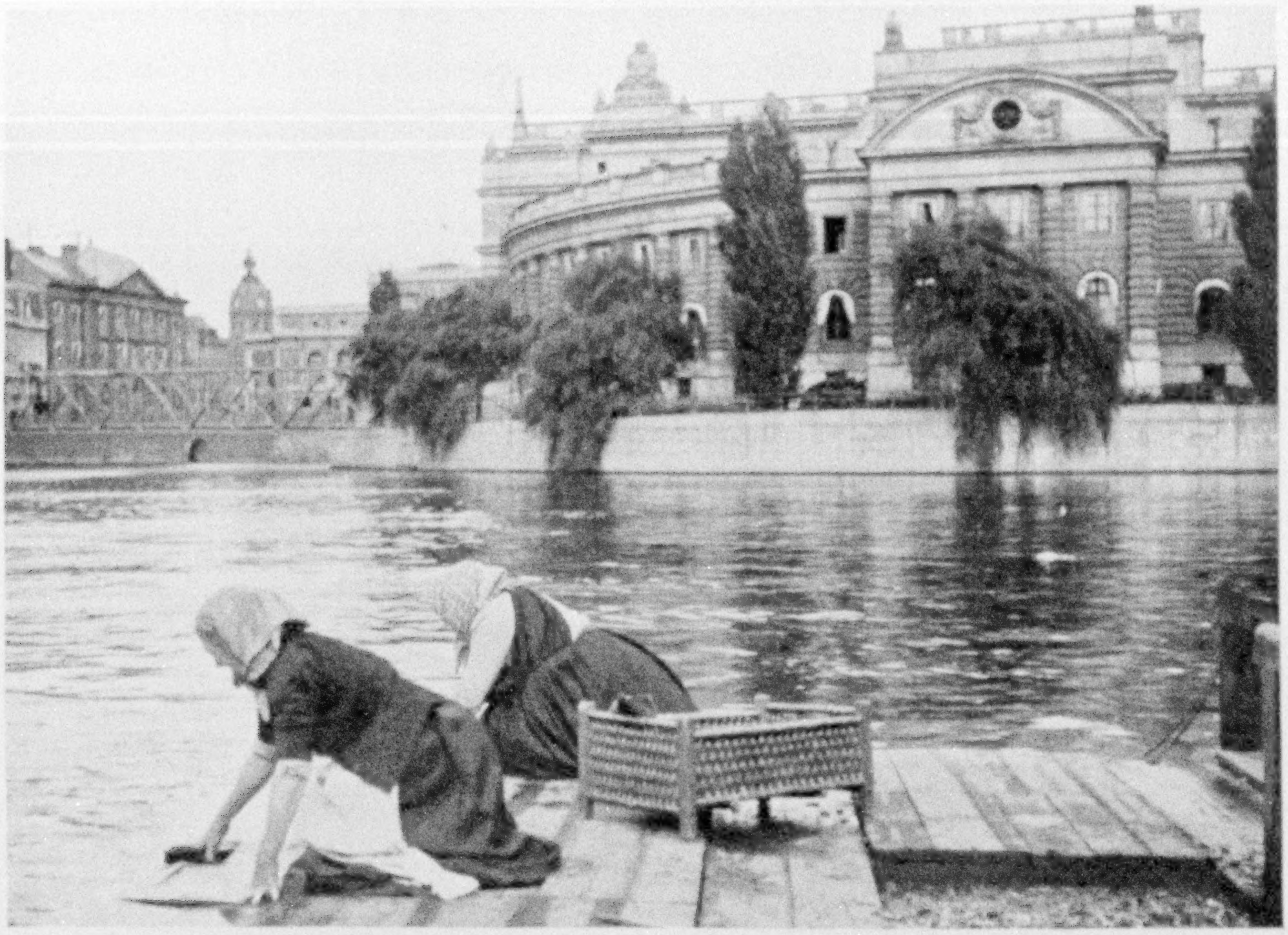
In their Northern Games, held in Stockholm every four years, Norway, Sweden, and Finland have an Olympic series of their own. Many of the contests are held in this stadium.



Photographs by G. Heurlin

FLOWER-SPRINKLED SQUARES ARE A DISTINGUISHING FEATURE OF STOCKHOLM

The fountain group represents Thor with the Midgard serpent, a Scandinavian legend in bronze by H. Wissler. In the foreground is a copy in bronze of Hasselberg's Snowdrop.



Photograph by Donald McLeish

WASHING THEIR LINEN IN THE SHADOW OF THE STATE BANK

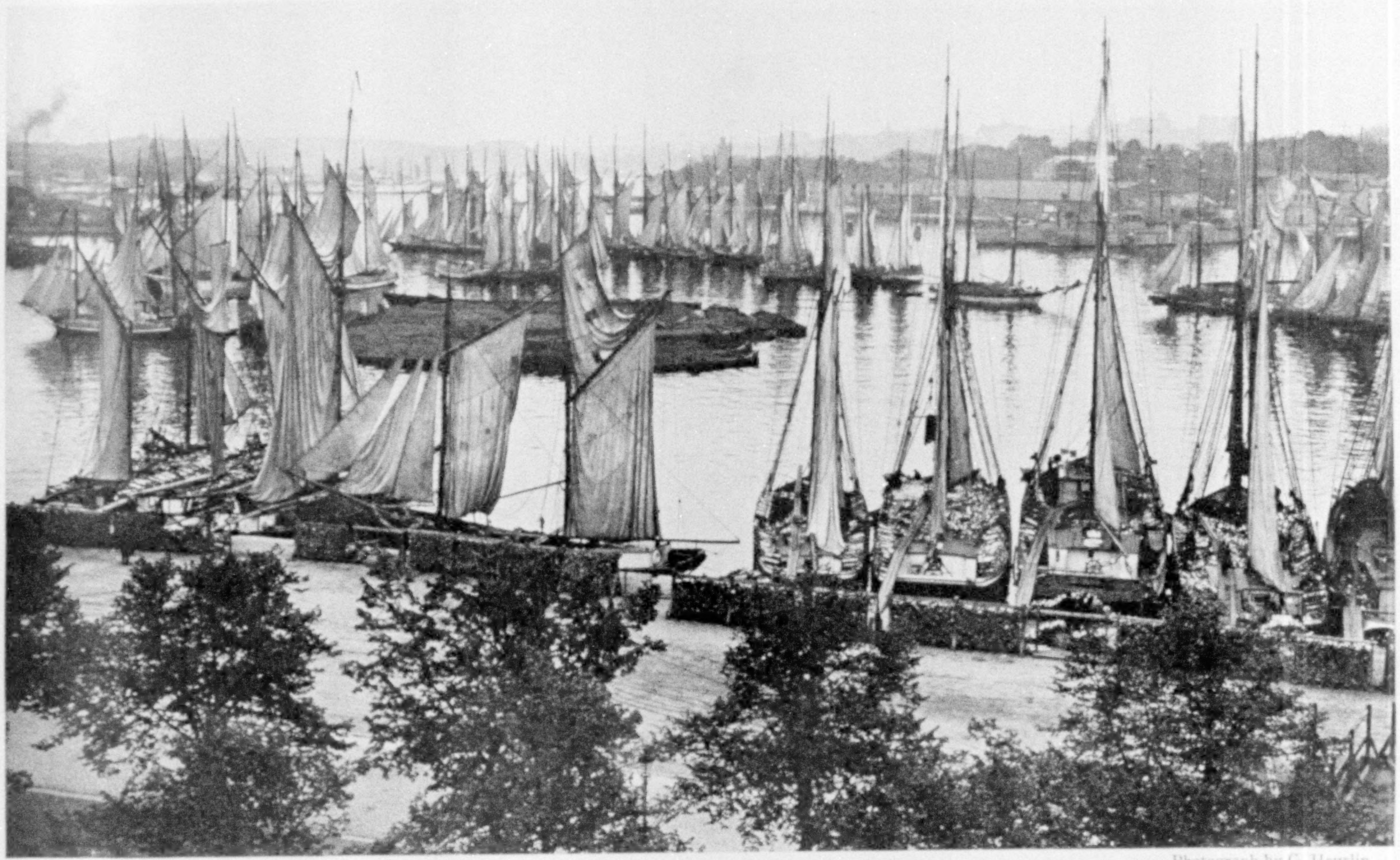
Residents of the poorer quarters of the city may be seen at this public laundry platform on Lake Mälaren at all hours of the day. In well-to-do households it is the custom to have the laundry done only once a month, a practice which entails a large investment in linen, especially as so much entertaining is done in the home. Scores of tablecloths, dozens upon dozens of sheets, and hundreds of napkins are required by even a small family under this once-a-month policy. Two or three laundresses are hired to come to the home or apartment for several days at a time when the linen-closet supply runs low.

the athletes of Sweden, Norway, and Finland are the chief contenders, are held in Stockholm every four years to establish supremacy in ski-jumping, ice-skating, and kindred winter sports. These contests arouse as much enthusiasm and the rivalry is as keen as in the October baseball classic between major league champions in America.

The magnificent stadium built for the 1912 Olympic Games in Stockholm is the scene of most of the athletic contests held in the capital (see page 416).

Horse-racing at Ulriksdal, a summer recreation resort about ten miles from the city, attracts its thousands, especially on Sundays. Children not infrequently are to be seen among the excited throngs, and they, like their elders, indulge their propensity for betting. When I was in a Swedish home one Sunday afternoon, a boy of 12 and his nine-year-old sister entered, their faces flushed and their voices exultant; their horse had won, and they gleefully displayed their winnings to indulgent parents.

The Government recognizes this gambling instinct of its people and tries to prevent Swedish gold from finding its way into other countries. As a counterattraction to the Danish lotteries, a special type of Government bond is sold to Swedish nationals. Each year certain of these bonds are selected by lot to receive large prizes made up from the sums which normally would be paid out as interest. The bonds themselves bear no interest; yet so strong is the spirit of chance that they sell at par, while just before the drawing of the lucky numbers the price often rises to 10 per cent above their face value.



Photograph by G. Heurlin

BIRCH-LADEN SAILING CRAFT IN THE HARBOR OF STOCKHOLM

From inland lakes and from inlets along the Baltic shores of Sweden these vessels bring the vast quantity of quick-burning wood fuel which keeps the capital warm in winter (see, also, text, page 422).

When the long days begin to grow short, when the well-to-do middle class and the aristocracy return from their country estates, when the autumn rains set in, and the lights begin to twinkle in apartment windows in the early afternoon (only the very wealthy can afford to live in private homes in Stockholm), the social life of the city awakens from its summer sleep.

SOCIAL LIFE IN THE CAPITAL

Then comes a long succession of dinners, musicales, theater parties, opera parties, and suppers. At least one feature of this Stockholm social life would meet with the hearty approval of the average American man of affairs: there is no such obligation as a dinner call. Swedes do not visit informally, nor would it ever occur to a Stockholm woman to telephone a friend and say that she expected to call. One goes to a friend's home only when he or she has been especially invited; but, having accepted such an invitation, he obligates himself to reciprocal entertainment. Thus the — to many — weary winter round begins.

Nothing could be more charming, however, than *one* formal dinner, or than any number of dinners after the visitor has been accepted as a member of the household.

The most distinctive feature of a Swedish repast is the *smörgås-bord* (sandwich table), variously described as a "super-super hors d'œuvre," a concentrated delicatessen store, and a general assault on all the rules of diet. To count calories while feasting at a smörgås-bord would require the services of an expert accountant equipped with several adding machines.

All the guests assemble about a small, overladen table in one end of the dining room. The men, with small glasses raised and with formal bows to their host and to one another, cry, "*Skål*" and swallow their schnapps (modified liquid lightning) at a gulp. It is not good form for the ladies to indulge in this beverage; neither do they partake of the excessively sweet and deceptively potent Swedish punch, served in cocktail glasses at the conclusion of the dinner.

After schnapps have been disposed of, plates are laden with cheeses, pickled herring, sardellen, anchovies, caviar (specially prized), cold meats of all sorts, sausages of every description, baked mushrooms, pickles of many kinds, several varieties of bread, but always the large, grayish-brown unleavened cracker disks called *knäckebröd*, eaten after being profusely spread with butter. The delectable heterogeneous mixture is consumed with generous potations of Swedish or Danish beer, the latter much preferred by connoisseurs.

The novice at the smörgås-bord is always loath to leave, for he can imagine nothing to follow which could be half so palatable; but in the course of time, after he has sampled most of the dishes and helped himself several times to those which have appealed most strongly to his fancy, he begins to blush at his capacity.

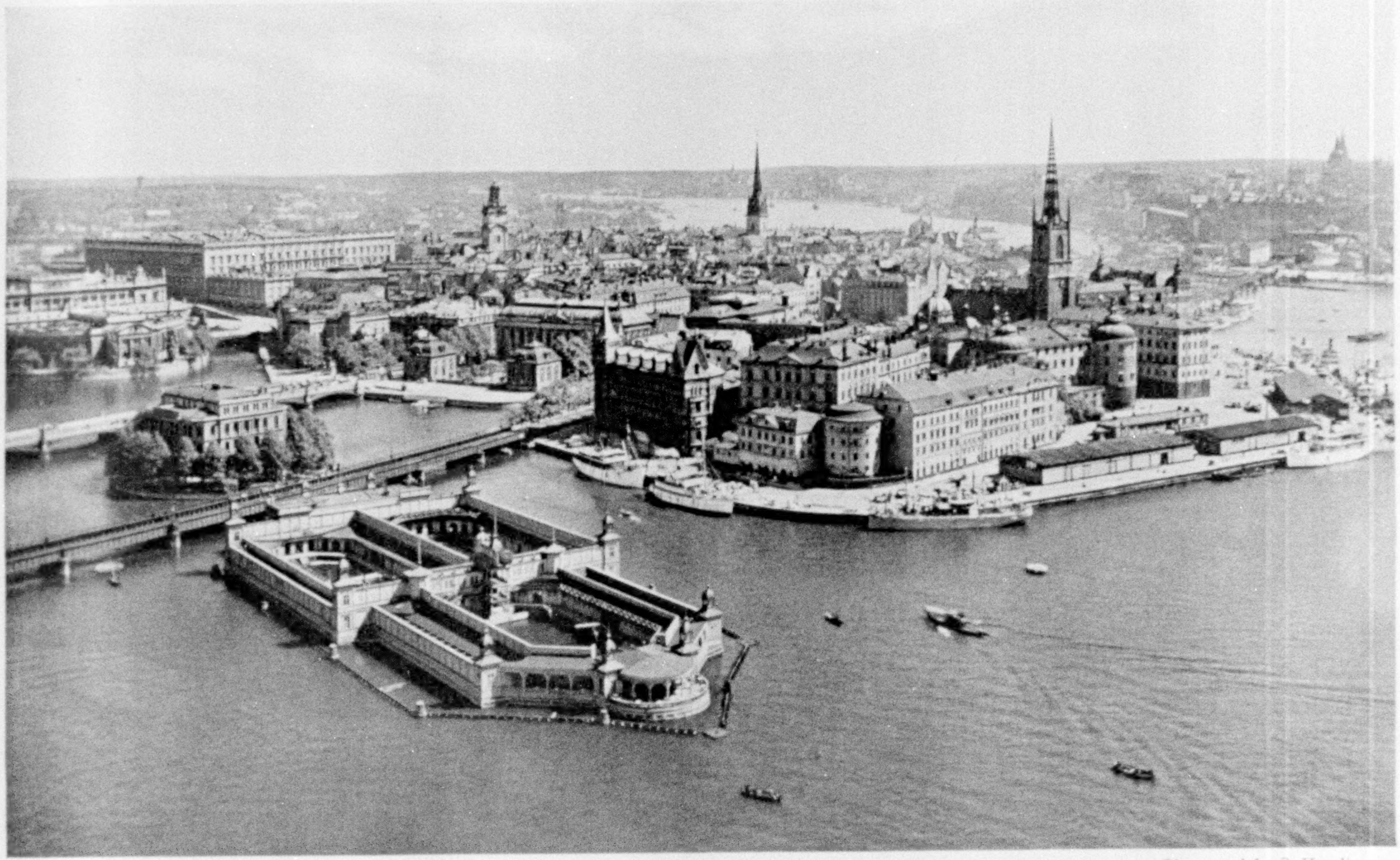
The watchful host and hostess, seeing that their guests' appetites have finally begun to lag, proceed to the formal dinner table, where course now follows course in much the prescribed method of American dinners.

FORMALITY OF ADDRESS PREVENTS MUCH "SMALL TALK"

The conversation is apt to impress the stranger as rather oppressively stilted, largely on account of the peculiar custom of always addressing a person by his full professional, political, or diplomatic title. It is never merely "Mr. Almkvist," but always "Mr. Minister of Education and Ecclesiastical Affairs Almkvist," or "Mr. Assistant-to-the-General Manager Östberg." And each and every time a remark is addressed to Mr. Almkvist or Mr. Östberg, his full title must be repeated.

To one unaccustomed to the rules of this social game, general discussion becomes strained and "polite nothings" are impossible. The regulations would seem to demand that one have something to say, else remain silent.

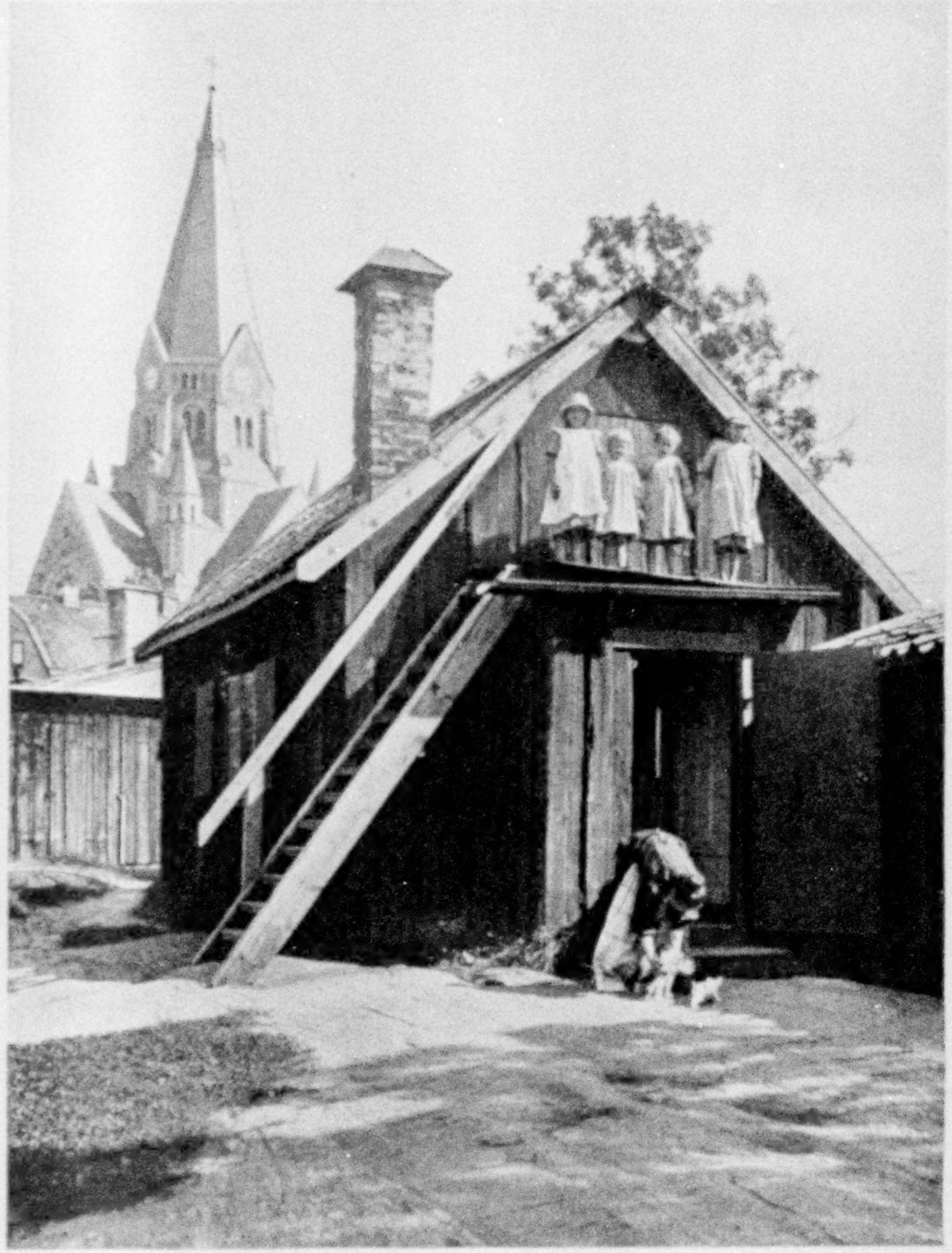
At the conclusion of the dinner, but before the ladies have withdrawn, the host, with engaging simplicity, makes a gracious and graceful speech of welcome to the guest of honor, expressing the pleasure which the entire company has had in the guest's society. The speech is always in the language of the visitor's country. Like the Russians, the Swedes are noted linguists.



Photograph by G. Heurlin

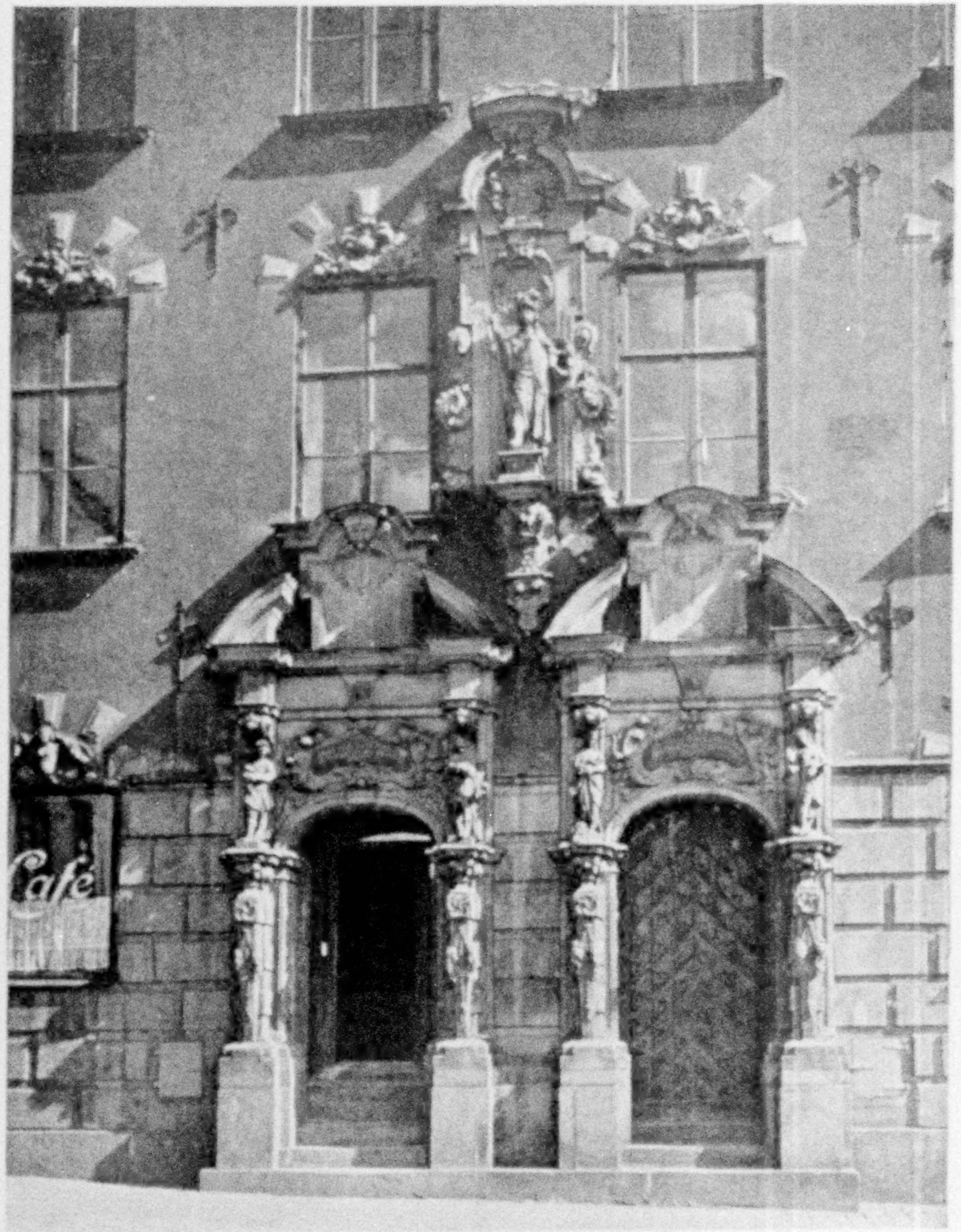
LOOKING DOWN ON STOCKHOLM FROM THE LOFTY TOWN HALL TOWER (SEE PAGE 408)

In the left foreground are the city's magnificent swimming pools. The islet just beyond is occupied by an exclusive restaurant, and farther on, in the same line, is the House of Parliament (see page 405), with the Royal Palace to the right. Beyond is the square tower of Storkyrkan, the city's oldest church, dating from 1260. Conspicuous at the right is the 295-foot open-work iron spire of the Riddarholm Church (see, also, page 404), modestly suggesting the soaring spire of the Rouen Cathedral, the loftiest in France. Surrounding this church are numerous Government office buildings.



A FEW SUCH HOUSES SURVIVE STOCKHOLM'S EARLY CENTURIES

Conflagration after conflagration has resulted in a modern Swedish capital of granite (see text, page 403). Several examples of these homes of the Middle Ages are now preserved in Skansen, Stockholm's famous outdoor museum and zoölogical park (see, also, Color Plate V).



Photographs by G. Heurlin

ORNATE DOORWAYS DISTINGUISH SOME OF THE CITY'S OLD HOUSES

Immediately behind the Royal Palace rises the old quarter of Stockholm, now occupied by the poorer classes. But the land is held at fabulous prices. Some day it may become the capital's most exclusive residential section, for the location, overlooking the city, is unsurpassed.

Photograph by Donald McLeish

MOLIN'S FAMOUS BRONZE GROUP, THE BELT DUELISTS

In this deadly old Scandinavian method of dueling the fighters were strapped together and fought with short knives. The reliefs on the pedestal with Runic inscriptions depict the cause and result of the combat.

At a signal the guests now rise and crowd about the hostess and the host, while each in turn proceeds to shake hands and with a more or less formal bow expresses thanks for the dinner.

Incidentally, the first words one learns in Rome may be *Quanto costa?;* in Paris *Combien?;* in Berlin, *Verboten,* but the most useful and most necessary words in Stockholm are *Tack så mycket* (Thank you very much). You may abbreviate it to a monosyllabic "tack" when thanking the telephone operator for giving you a number, the salesgirl for handing you your purchase, the street-car conductor for giving you your change for the 15 öre (4 cents) car fare, or the usher at the opera for handing you a program. But everywhere it is an imperative courtesy.

At family dinners the children of the household, upon being excused by their elders, go immediately to their mother with a "Thank you very much for the bountiful meal, mother," accompanied by a kiss on her brow. A similar ceremony follows with the father. If there are four or five youngsters, there is often spirited rivalry as to which shall be the first to say, "Tack så mycket," but it never degenerates into a meaningless formula; always it is a sincere expression of filial respect and gratitude.

AROUND THE FAMILY FIREPLACE

Although the modern apartment houses in Stockholm have central heating systems, that somewhat grotesque yet picturesque institution, the expansive, ceiling-high tile stove, one of which formerly occupied a large proportion of the space in every room of the establishment, has a lineal descendant in the colored-tile open fireplace which now graces only the drawing room. Around it the guests assemble after dinner for coffee. No andirons are used, as the bottom of the fireplace is raised about two feet above the floor of the room. It is piled high with small birch logs, which begin to burn brilliantly without kindling wood, as soon as a match is applied to the silvery bark.

Until one has seen a Swedish stove or

one of these fireplaces in operation, he wonders what possible use the people of Stockholm can make of the countless cords of wood piled high on sloops and schooners tied up along the city's miles of quays. After he has observed how the fuel burns, he wonders how the city's demands can be met, even though more than half of the country is forest land (see text, page 443).

With dinner concluded, the guests may be entertained by a musicale at home, or more probably seats have been "booked" at the Royal Opera House or the Dramatic Theater, or even the city's leading high-priced motion-picture house, where the best seats are always reserved and where long programs of excellent American and Swedish films are shown. The foreigner is especially fortunate if he sees on the screen one of the folk dramas of such writers as Selma Lagerlöf, Nobel prize winner with her "Story of Gösta Berling."

Photograph by G. Heurlin

JENNY LIND'S MEMORY IS STILL GREEN IN STOCKHOLM

During her tour of the United States in 1850, under the direction of the famous showman, P. T. Barnum, the "Swedish Nightingale" made musical history and won the adulation of the public wherever she appeared. Across the water from this memorial rises the Northern Museum, where Sweden preserves a collection of early costumes, armor, and implements of agriculture and industry which is unsurpassed in Europe.

At the opera the visitor will see some such familiar work as "Faust" or "Carmen" or "Trovatore" well staged and competently sung in Swedish, for this is a government-supported institution. When distinguished guest artists come to Stockholm they are permitted to sing in the language of their choice, but the supporting cast and chorus invariably sing in Swedish.

There is no center aisle on the orchestra floor of the Opera House. Spectators must walk the entire width of the auditorium between rows. Fortunately, the chairs are far apart, so that early arrivals are not forced to stand while others pass through to their seats.

After the opera the host of the evening invites his guests to the Grand Café, where they are entertained upon a terrace overlooking the myriad lights of the city reflected in the waters of Lake Mälaren. With an excellent orchestra playing Italian airs, one may indeed feel that he has been transported to Venice or Venice to him!

The terrace supper is scarcely less elaborate than the dinner of a few hours before, and there is in addition a Gargantuan silver tray of crushed ice in which repose numerous small, greenish oysters on the half shell. They have been imported from Denmark. An American will probably remain oblivious to the treat provided for him unless he learns by accident that his host has paid 25 cents each for these puny specimens of shellfish.

In the early hours of the morning taxicabs are called (there are few privately operated "bils" in the city) and the party is distributed to its several destinations.

Thus does Stockholm entertain!

THE UNEMPLOYED PRESENT NO PROBLEM IN PROSPEROUS STOCKHOLM

A citizen of another country who is the recipient of such lavish hospitality is apt to feel a certain embarrassment or concern at the expense which his host has incurred. On the other hand, it is interesting to recall that while there are few large fortunes in Stockholm, there is probably a higher level of prosperity here than in any other capital of Europe.

An index to the economic stability of life in the metropolis is provided by the Government, which each week furnishes the newspapers with a statement concerning unemployment. The figures are published as a matter of course, exactly as our "vital statistics" of births, deaths, and marriage licenses. No special "surveys" are ever necessary.

One of the newspaper clippings which I have preserved is from a Monday issue of the leading morning paper. It contains the information that during the previous week there had been 983 unemployed; that 981 of these had been given employment by the municipality, only two being out of work at the end of the week. And this in a city the size of Washington, D. C.!

FLOWERS PLAY AN IMPORTANT RÔLE IN THE LIFE OF STOCKHOLM

The love of plants and flowers may be born in the Swede, but it is also assiduously nurtured by his parents, for the humblest apartment in Stockholm has its window box, and in the leisure-class homes every room has its vases of flowers throughout the year. In winter many families are served by flower vendors just as American households are served by the milkman, the iceman, or the grocer's boy.

In summer, before the hegira to the country and after the return to the city, the women of Stockholm are in the habit of making a daily pilgrimage to the flower market, in the square faced by the Concert Hall (see page 407).

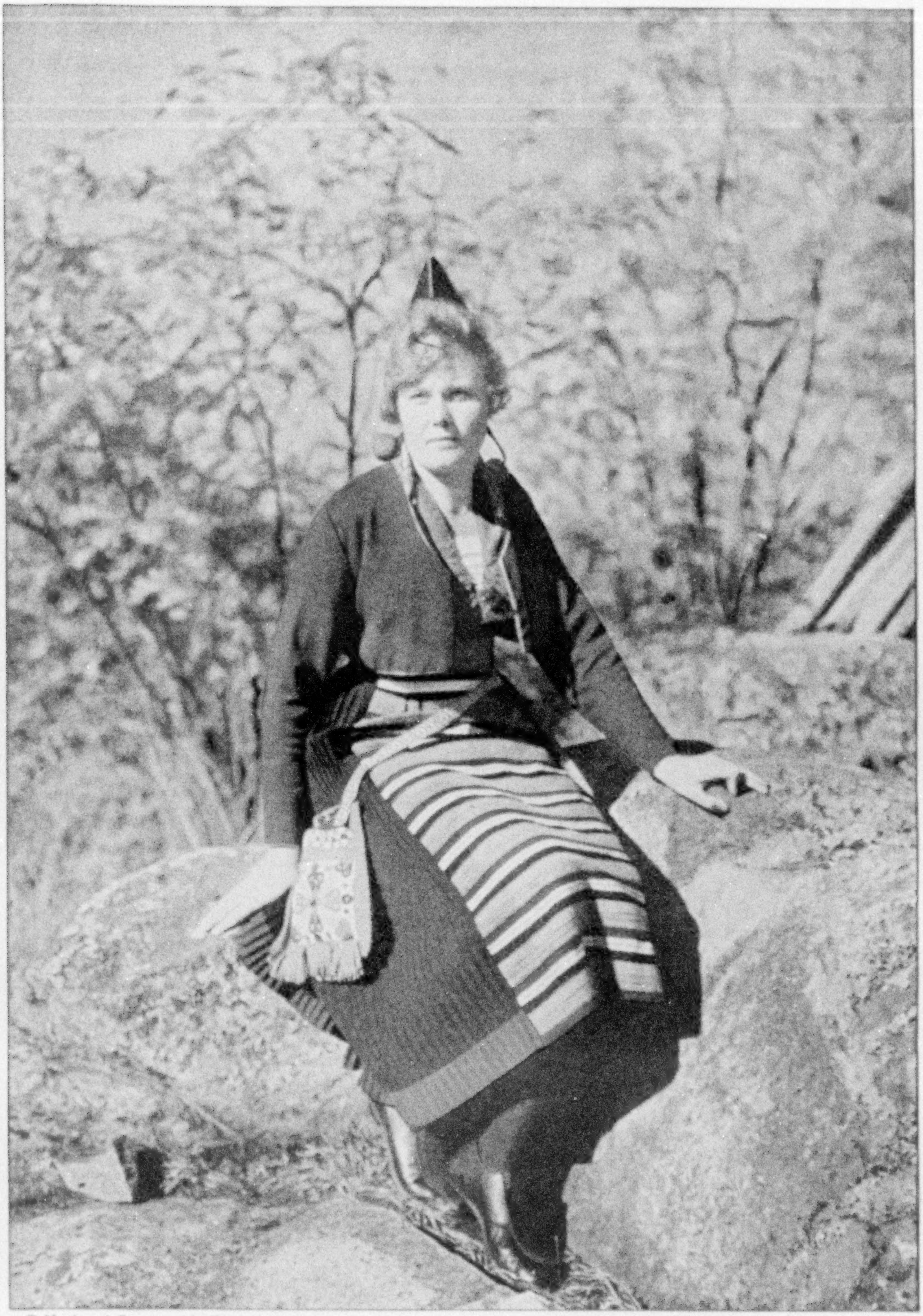
In the early mornings of late August there is no lovelier sight in Europe than this square. Hundreds of stalks of flaming gladioli four to five feet tall, at five cents each; enormous tubs of fragrant, long-stemmed red roses, dahlias by the cartload, bushel baskets of asters of every hue, and veritable clouds of sweet peas amaze the visitor wholly unprepared for such a carnival of flowers in a city situated in the latitude of the northern extremity of Labrador.

Every public square in Stockholm is sprinkled with flower beds — carnations, pansies, dahlias, begonias, and other blossoms less familiar to American eyes. Lilies of the valley grow wild in this country, like the ubiquitous Swedish mushrooms.

A HEART-WARMING SURPRISE

A pleasing floral custom here links the emotional Tropics with the reticent North. One expects to receive the widely advertised *leis* when departing from Honolulu, but it comes as a heart-warming surprise to find that in this supposedly reserved and austere city of Stockholm relatives and friends likewise say farewell with flowers, filling the railway compartment of the traveler with lilies and violets. Upon leaving Visby (see page 459) one evening, I found my stateroom on the toy steamer fragrant with Gottland's famous roses, bearing the card of the chief magistrate of the city.

The practice is a gesture of friendship—of sentiment, if you will—all the more appealing and long to be remembered because it comes from a people who normally wear a mask of aloofness difficult to pierce and often misunderstood, but which when once removed reveals a nature proud, generous, and hospitable.



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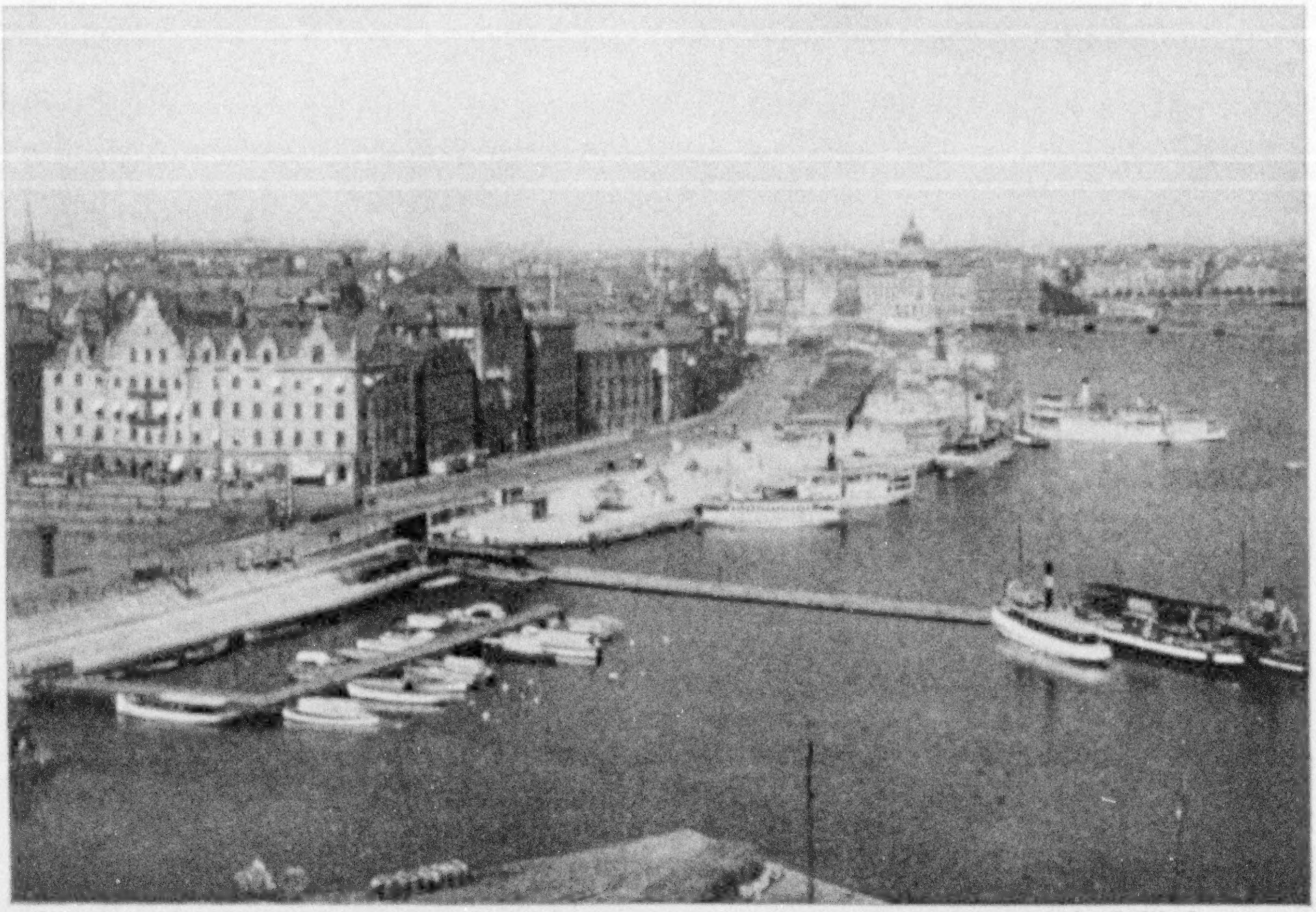
AS SEA-ROVERS, EXPLORERS AND SETTLERS, HER PEOPLE HAVE COVERED THE EARTH

For uncounted centuries, her ancestors have lived in that land now named Sweden. From it they ventured forth, in the dawn of the Christian era, to trade with Romans and Arabs. Swedes played a big part, too, in the adventures of the Viking Period—when Leif Ericsson reached the east coast of North America. A belle of Rättvik, prototype of many American women of Swedish descent, often seen in Minnesota and Wisconsin.



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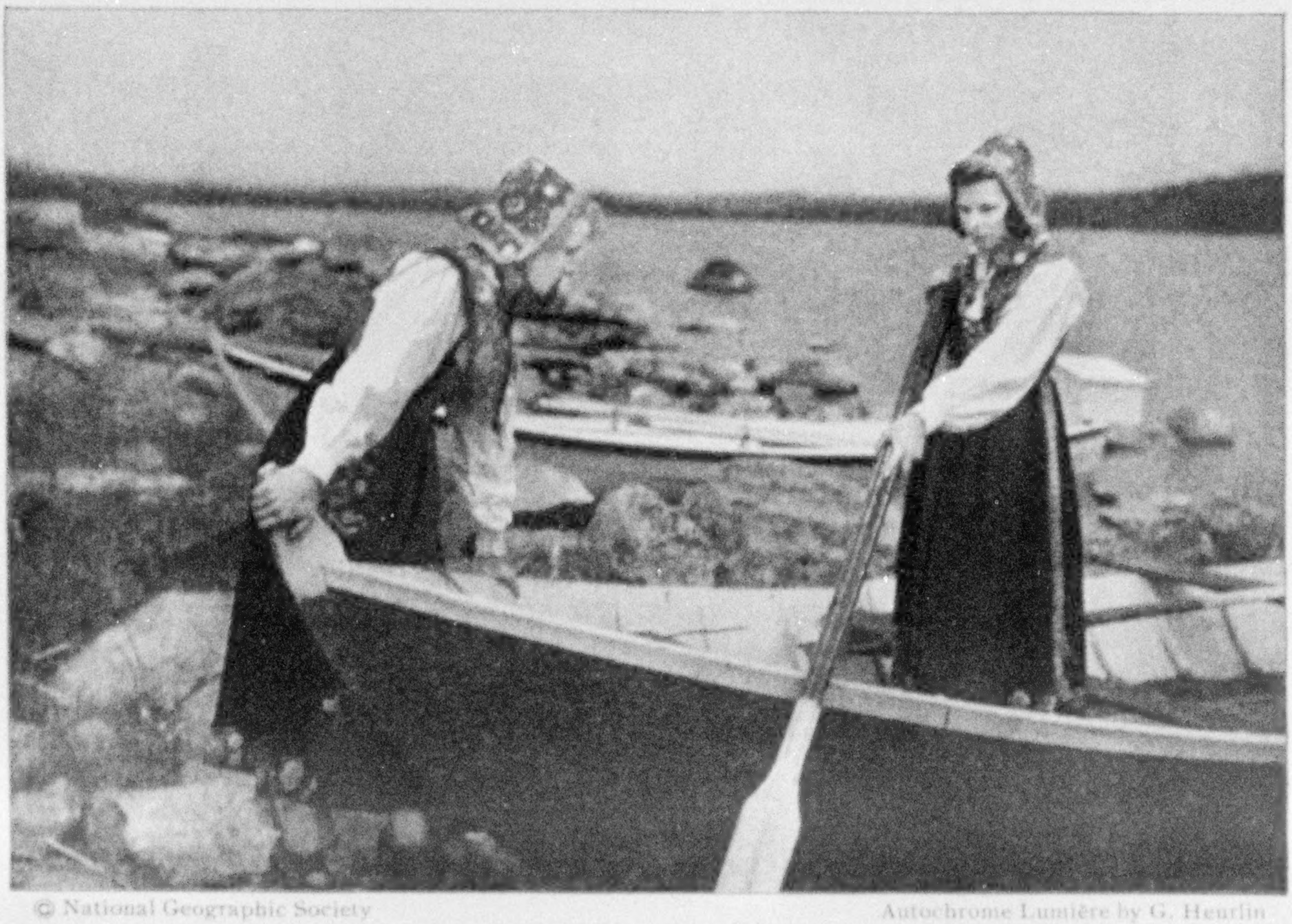
STOCKHOLM SITS ASTRIDE HER SILVER SKERRIES

Sweden's Granite City is built in large part upon two groups of islands—one an archipelago in Lake Malaren, the other in an arm of the Baltic Sea. This is a section of the old town, as distinguished from the newer residential quarters.



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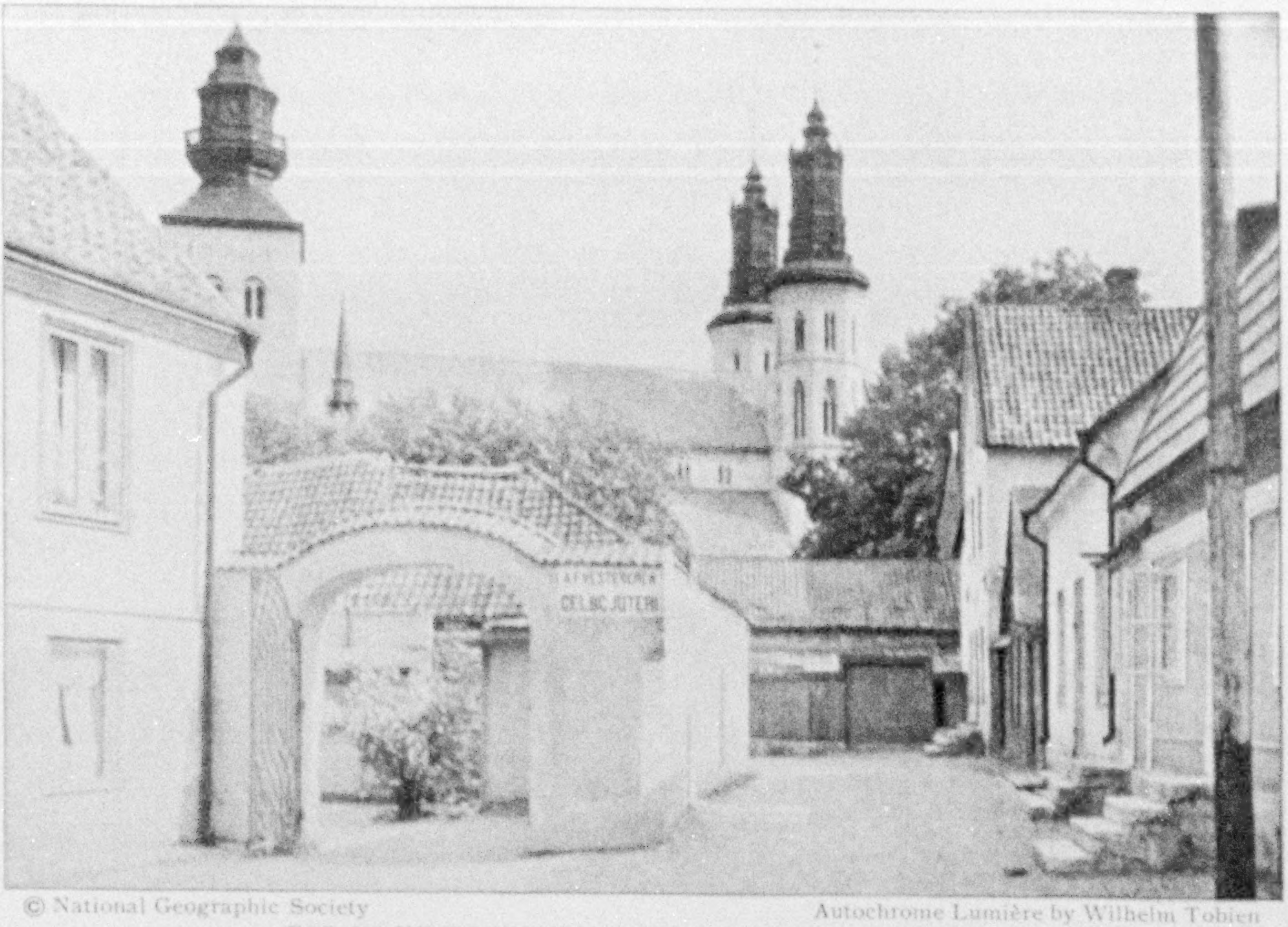
AN OLD CUSTOM CURTSIES TO MODERNITY

A motor now usually propels this rowboat over one of the small lakes near Floda village. The elongated crafts or "church boats" of early days, propelled by as many as 10 or 12 pairs of oars, are rare, and nowadays these Dal folk journey to church in a rattly "bil" (automobile) of American make.



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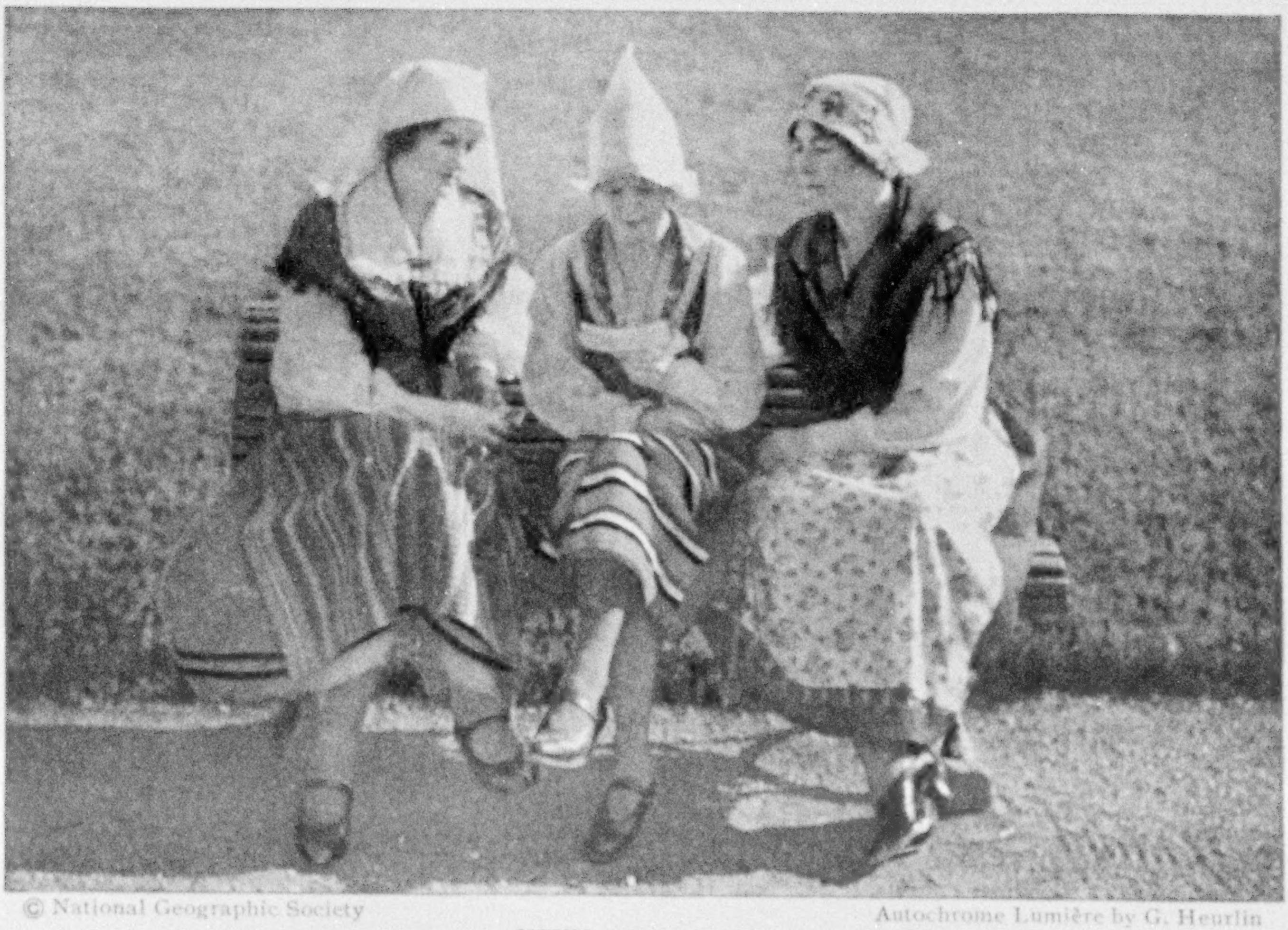
FOR 700 YEARS VISBY HAS WORSHIPED ON THIS SPOT

The Cathedral of this "Lost City" of the Baltic is the only church still in use out of the 11 which remain from the 16 of the Middle Ages. German merchants built the first one, and the later structure on this site has been altered several times during the centuries.



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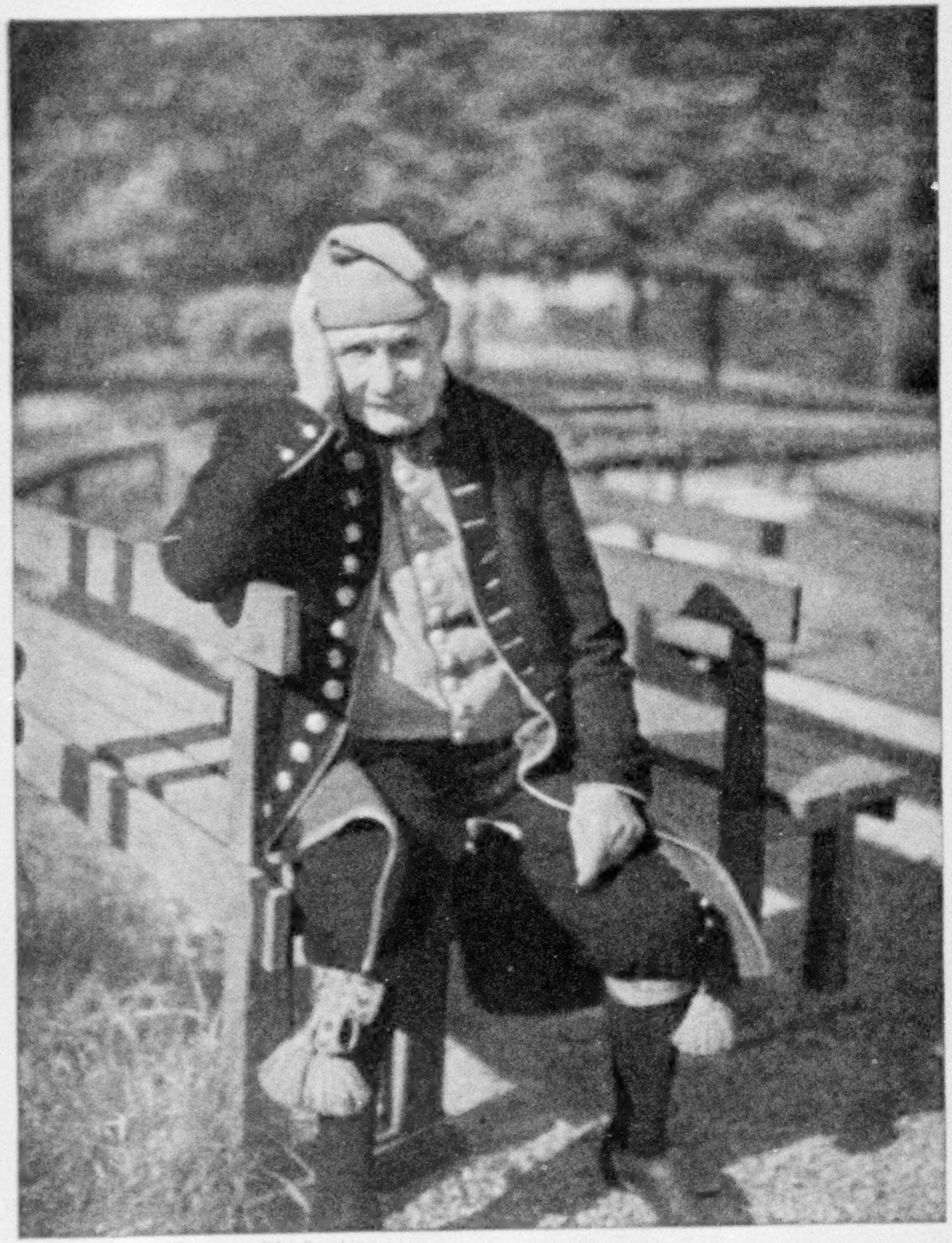
NEWS FROM HOME

A belle from Rättvik sits between two girls from Blekinge, Sweden's smallest and southeasternmost administrative province, on the Baltic. Its friendly valleys, rich vegetation and its majestic woods of beach and oak, endear it to its people as "The Garden of Sweden." Karlskrona, the capital, is a naval base.



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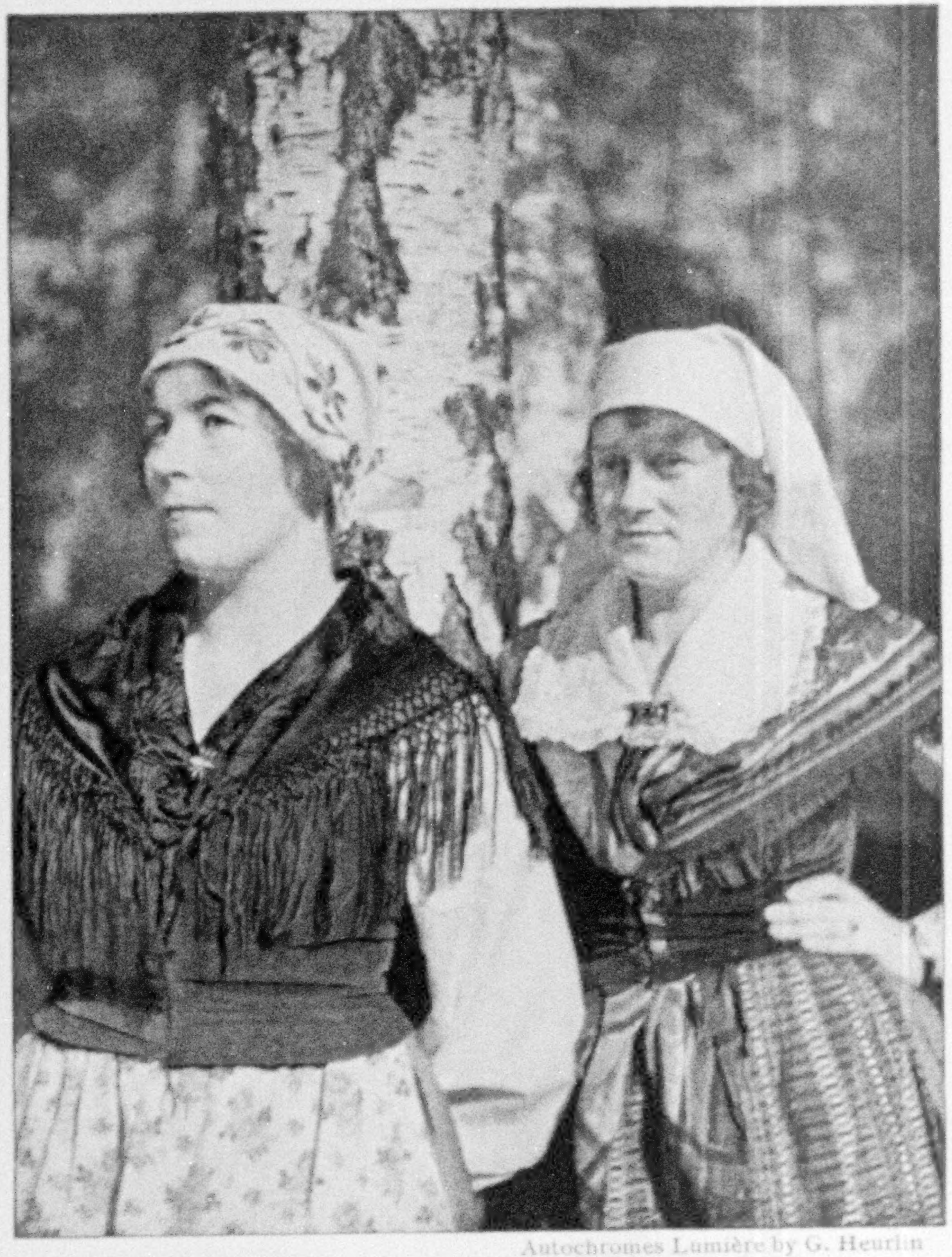
"MY AGE IS AS A LUSTY WINTER"

Hälsingland, his northern homeland, is one of woods and rivers, and Delsbo, his village, lies in the pretty country of the Dellen lakes.



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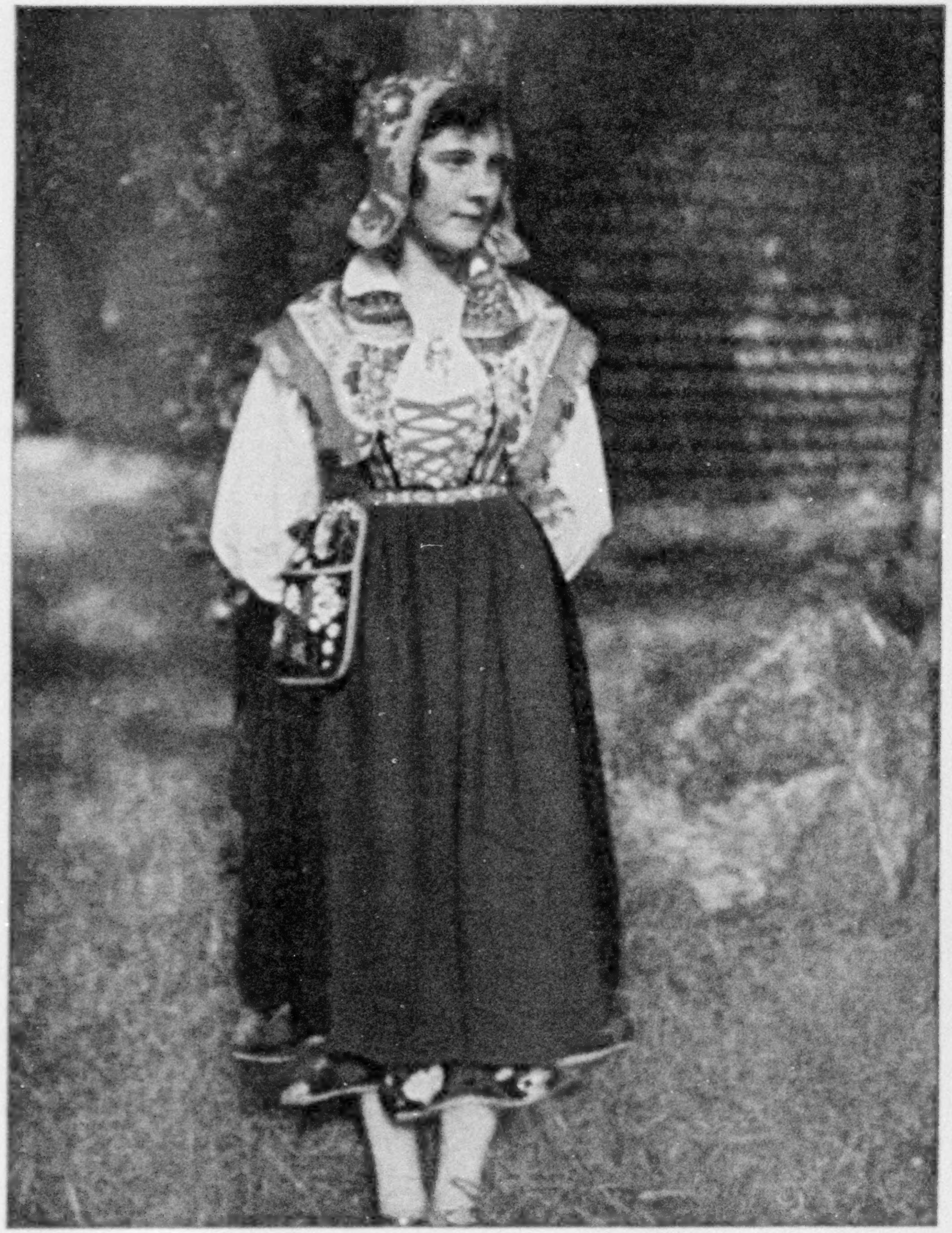
TYPES FROM THE GARDEN PROVINCE

The Blekinge costume shows to advantage against the silvery trunk of a birch, the graceful "white lady" of central Sweden's forests.



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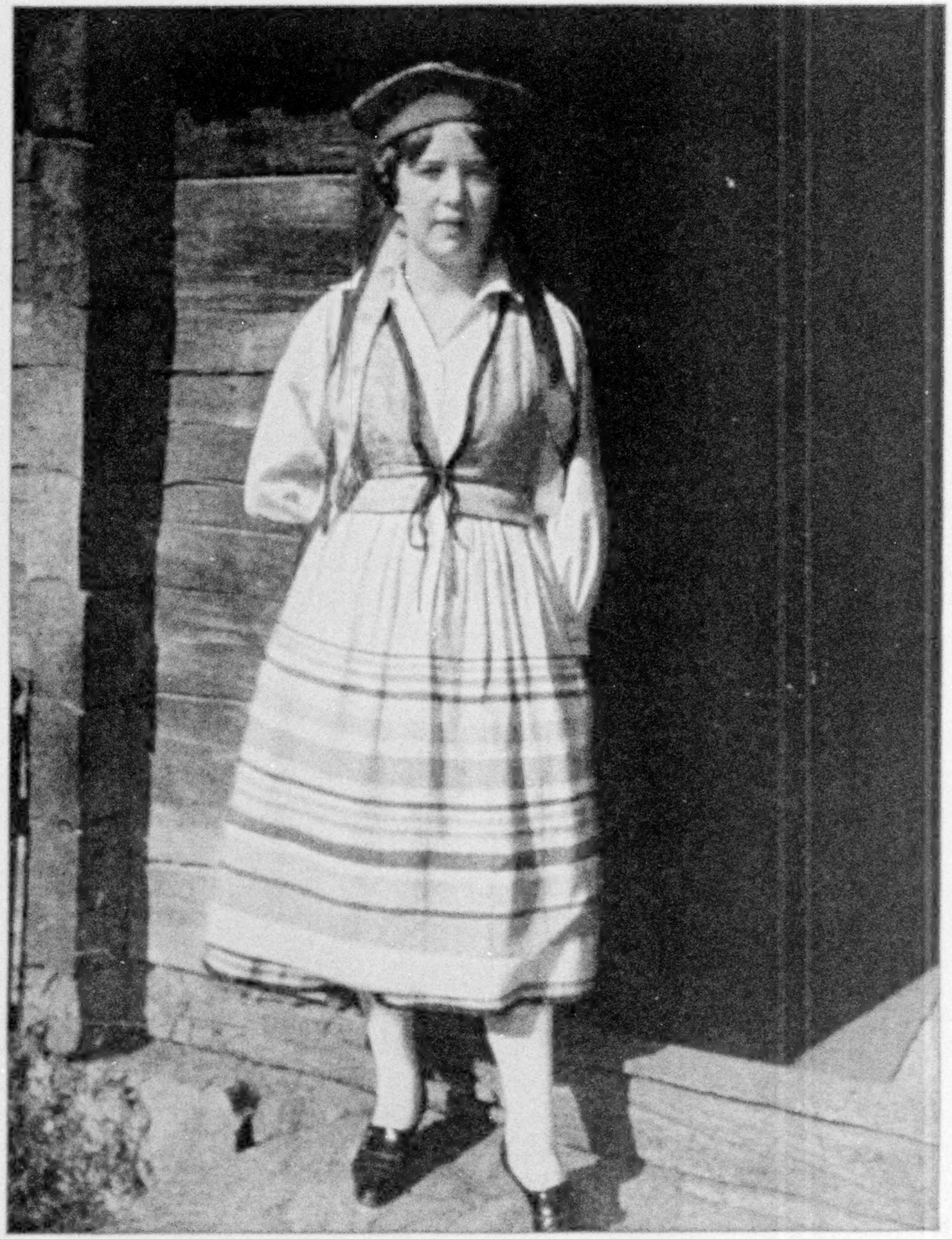
YOUNG SWEDEN NOW STUDIES ENGLISH

Rapid increase in tourist traffic, and Sweden's close commercial and cultural relations with England and America, spread a growing knowledge of English in that country.



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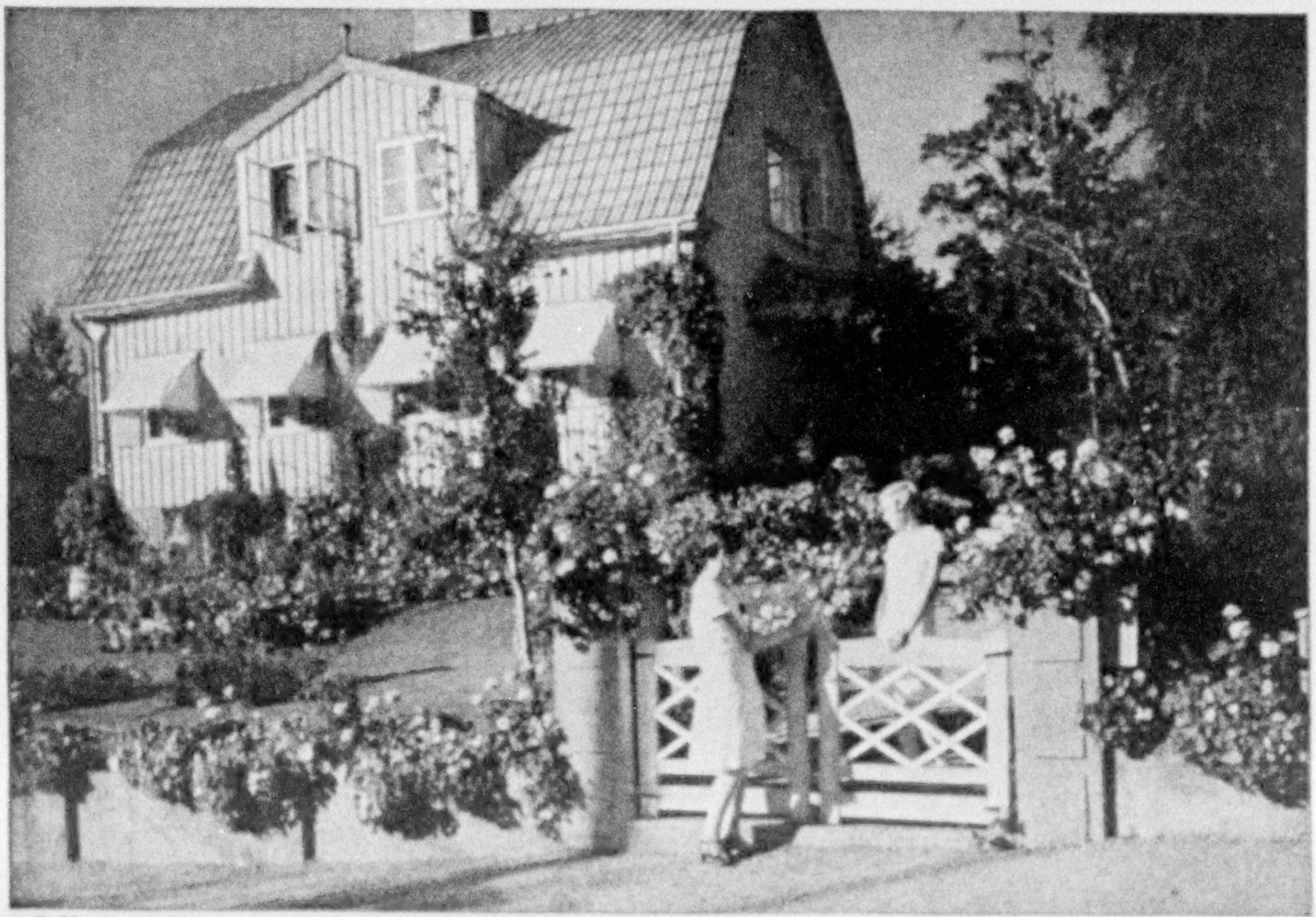
A CHARMING LESSON IN SWEDISH HISTORY

This Blekinge girl stands before a farmhouse in Stockholm's unique Open Air Museum, at Skansen, which presents an actual cross-section of the kingdom's early folk life.

SWEDES MAKE THE MOST OF THEIR SHORT SUMMERS

Though farming and dairying are still dominant activities, Sweden, during the past generation, achieved a place among industrial nations. Her trades allied to timber and iron ore are hugely developed, and her engineers and industrial chemists enjoy a world-wide reputation.



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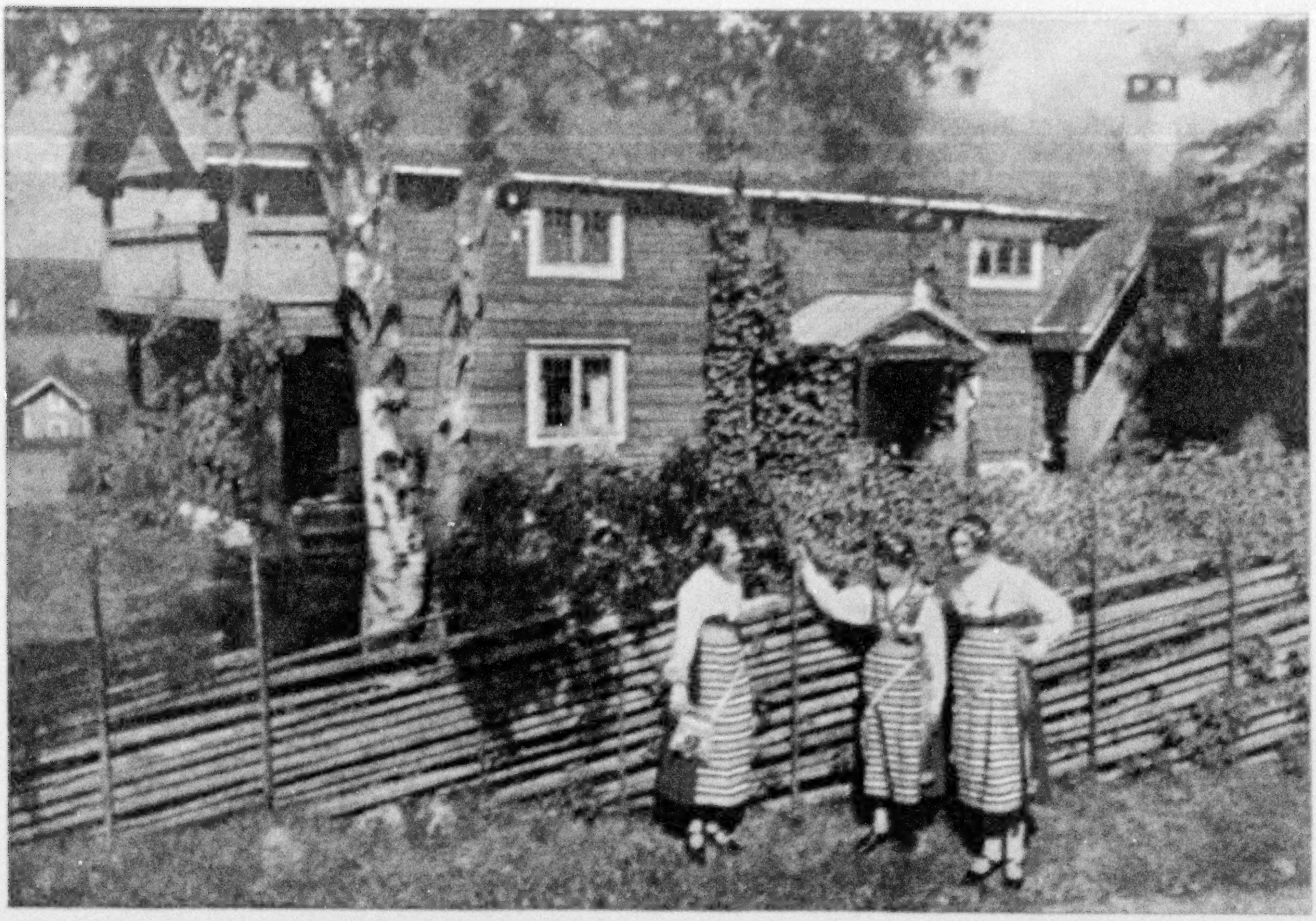
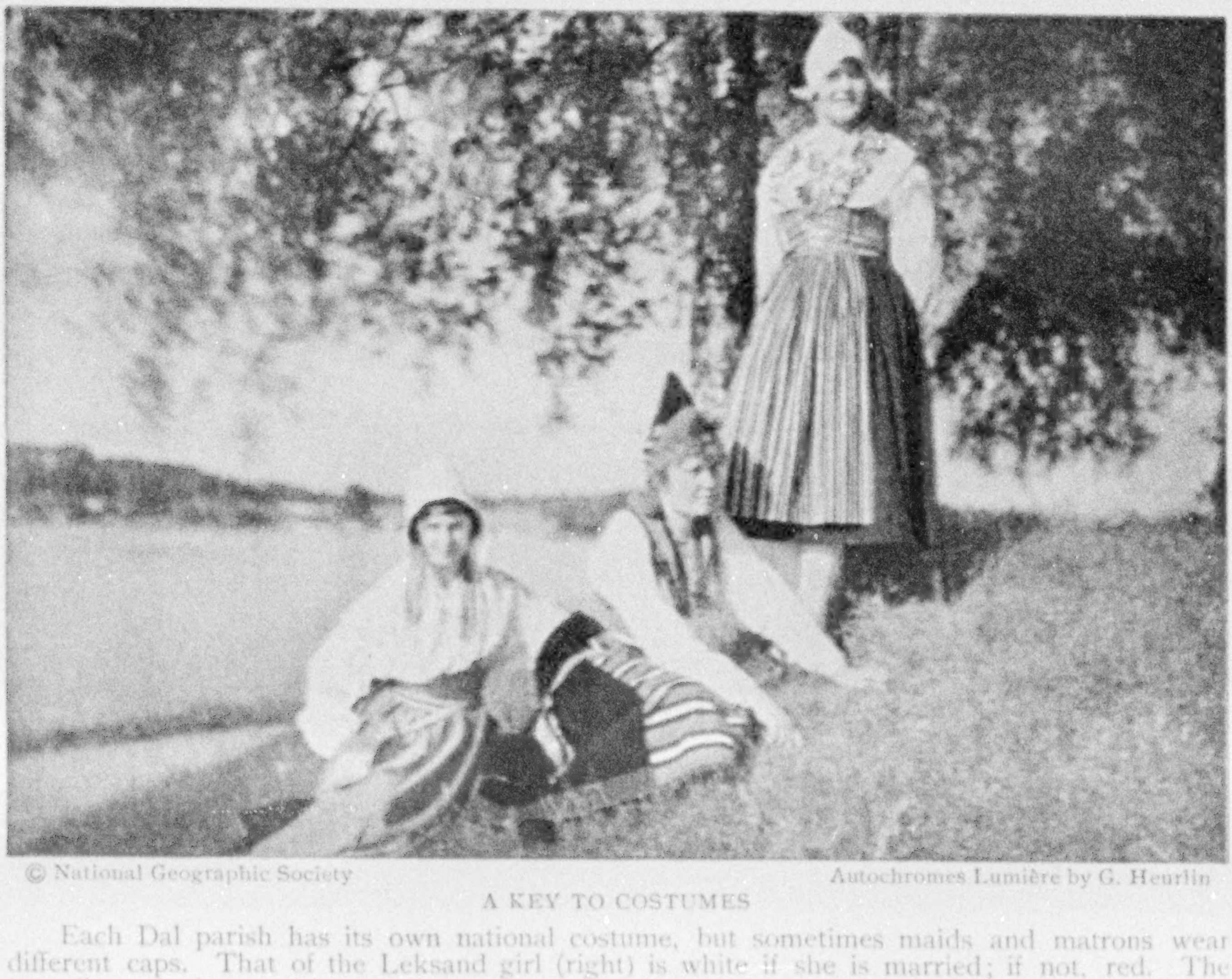
SWEDEN STRESSES THE NATIONAL CHARACTER OF HER ARCHITECTURE

A strong movement toward home life has influenced building activities, especially in the private-home quarters of Stockholm. In its garden suburbs a simple, artistic style of architecture with traditional features is emphasized. An expression of this movement is the annual exhibition of cottages.



THE ARTIST'S BRUSH RECORDS DAL FOLK AND FOLKWAYS

The villages around Lake Siljan are happy hunting grounds for Swedish painters who seek to preserve the natural charms of the region, and especially what remains of Dalarna's colorful life of earlier days. Despite the inroads of progress, the beauty which these artists love survives.



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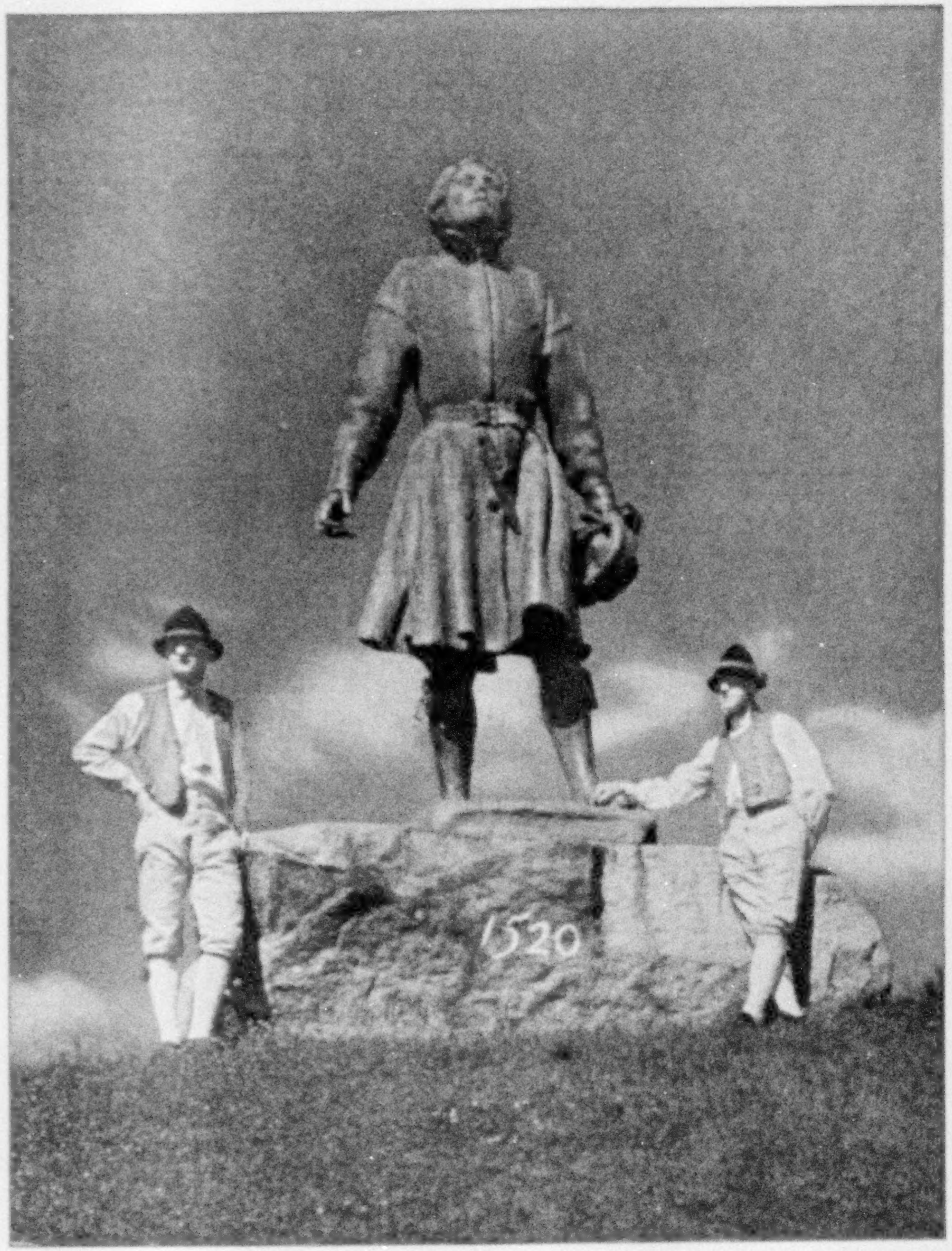
A KEY TO COSTUMES

Each Dal parish has its own national costume, but sometimes maids and matrons wear different caps. That of the Leksand girl (right) is white if she is married; if not, red. The Rättvik peaked cap with red stitching (center) is coquettishly perched on the back of the head, while Mora's (left) is staidly Puritan.

XUM



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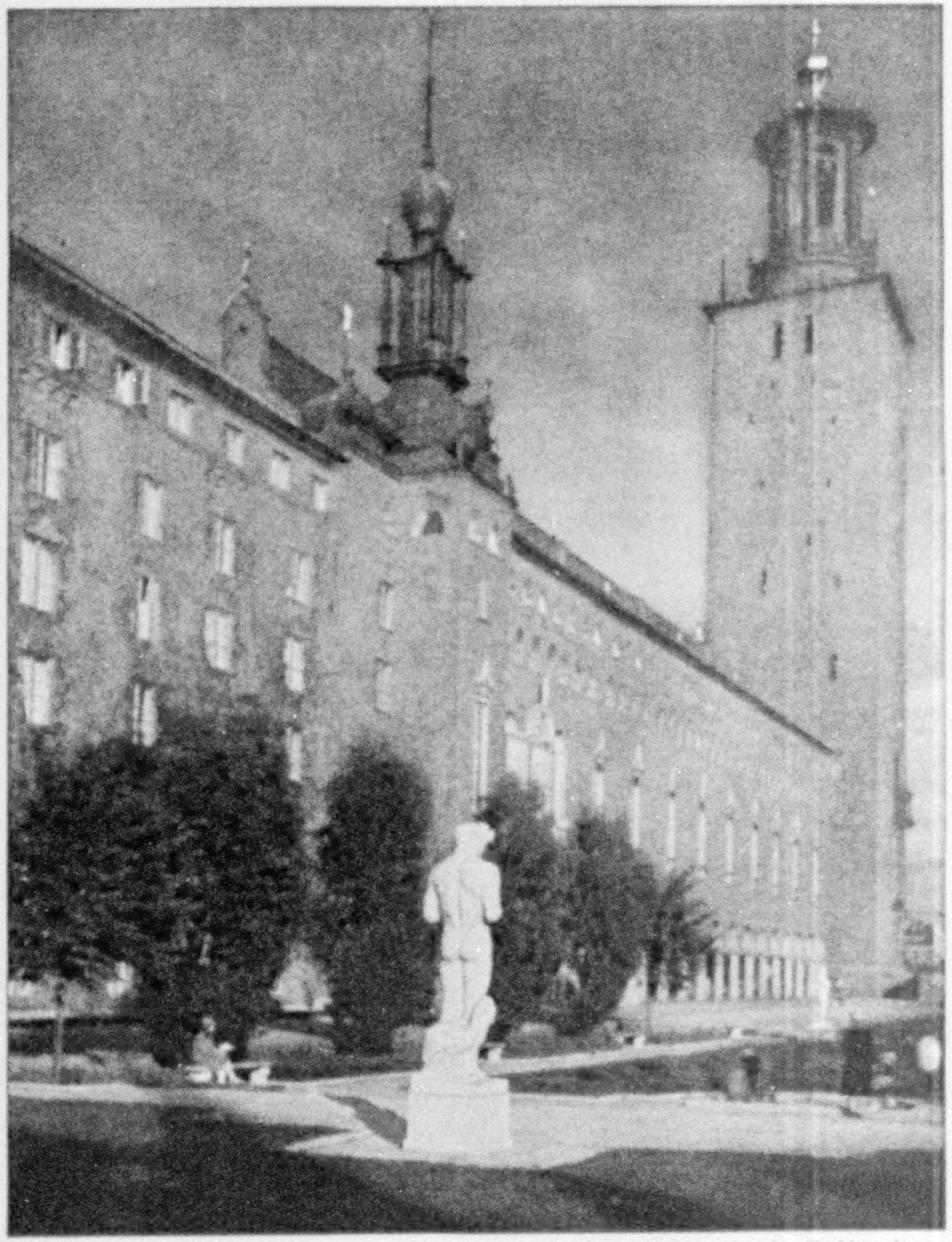
A NATIONAL HERO

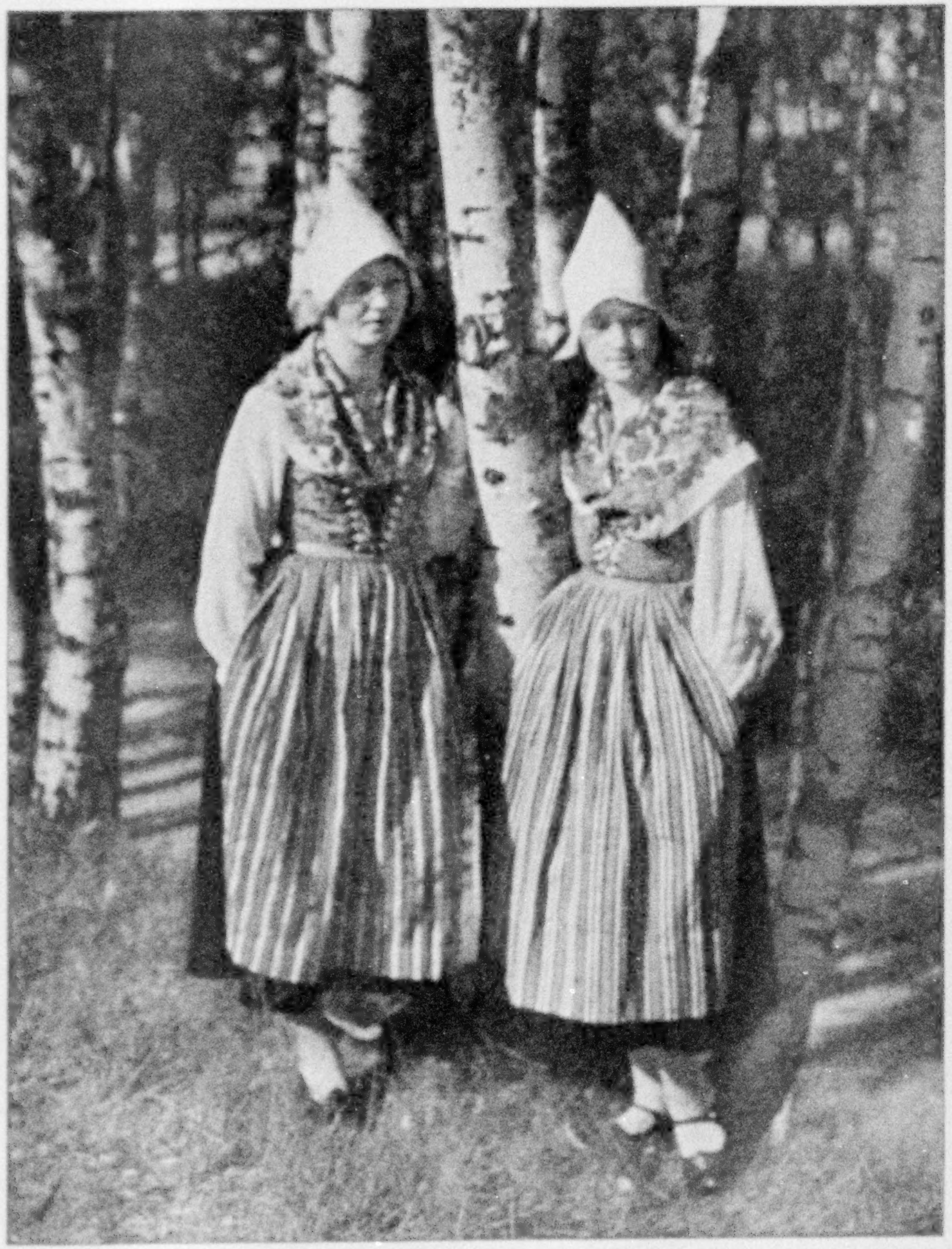
At Mora, on Lake Siljan, Gustavus Vasa, in 1520, called his countrymen to do battle for freedom. Under his sway the men of Dalarna became the backbone of his army. This statue of the great liberator-king is by Anders Zorn, and stands outside the village church.



Autochromes Lumière by G. Heurlin

THE TOWN HALL—A CULTURAL LANDMARK

Coming as a climax to the recent revival in Swedish architecture, Stockholm's Municipal Building represents a unique combination of traditional modes with modern ideas in construction. It was completed in 1923 and fronts Lake Mälaren.



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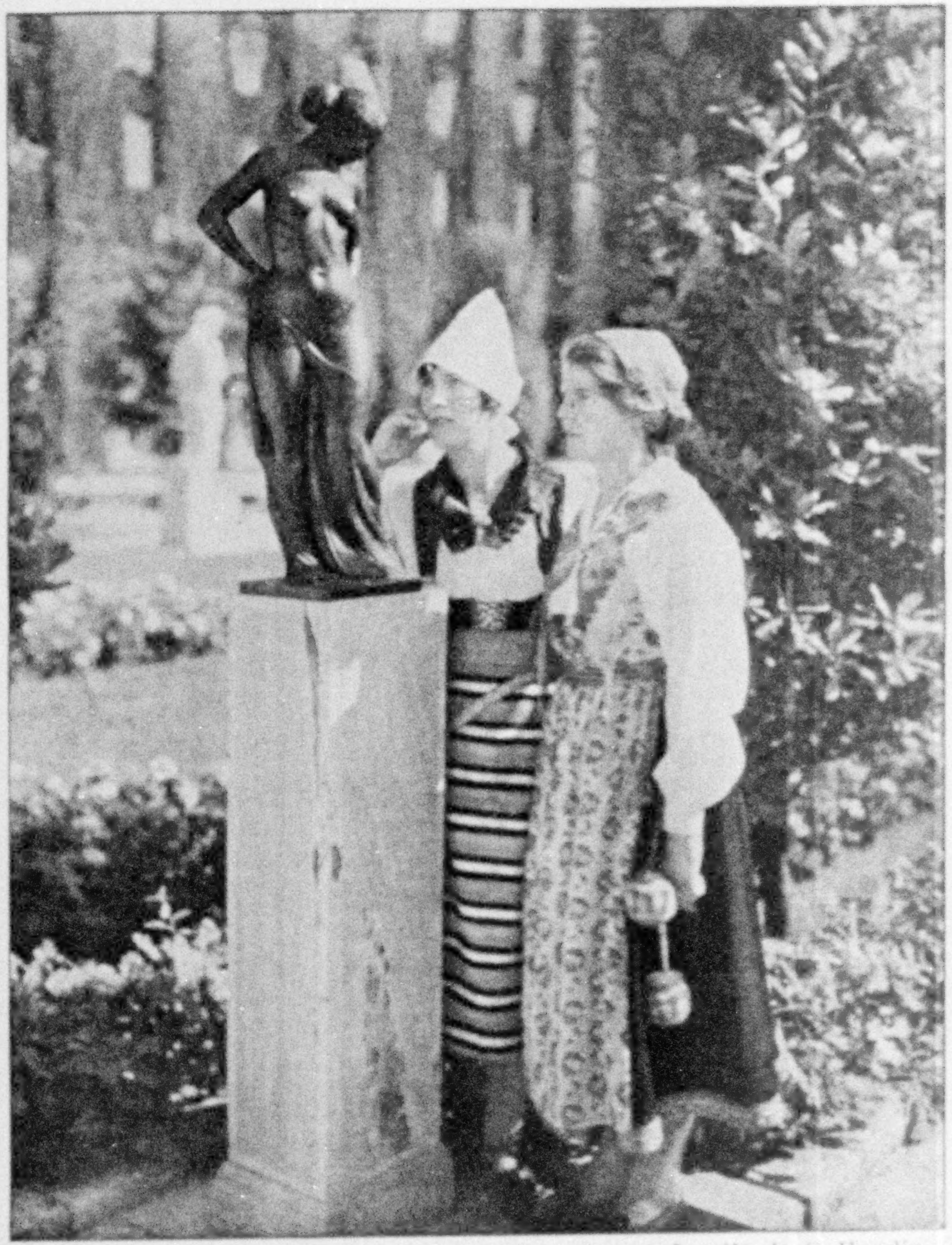
TRYST AMONG THE BIRCHES

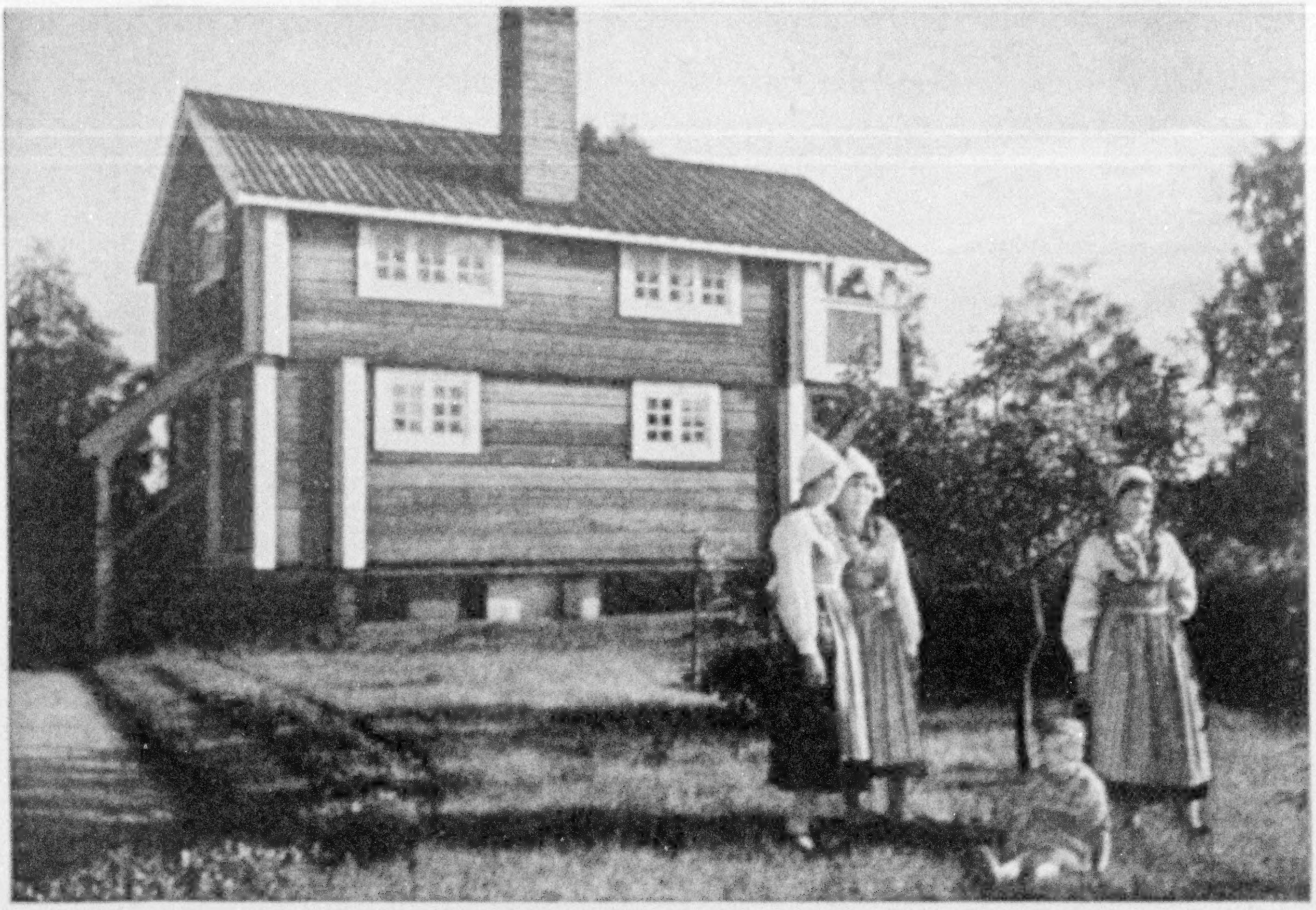
In summer many Dalarna villages are almost depopulated, when the young people drive their cattle and goats off to mountain pastures. Here, among the birch groves, the women's melodious singing blends with the soft tinkle of the cowbells. These Dalarna girls live at Leksand.



Autochromes Lumière by G. Heurlin

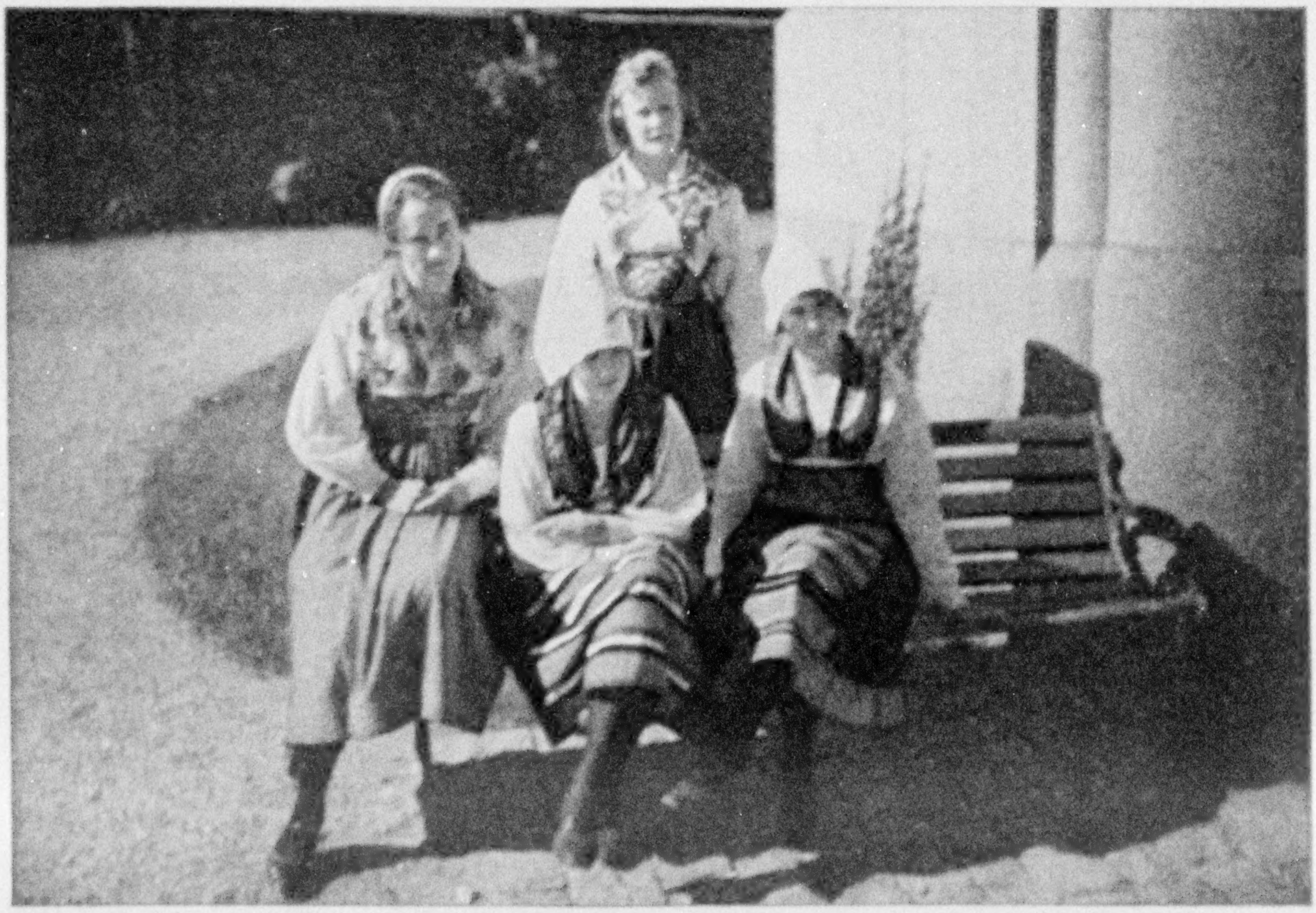
DAUGHTERS OF AN ANCIENT RACE

Five thousand years ago, or more, a Teutonic branch of the Aryans settled here, and isolation has preserved racial integrity. Yet emigration has been large. Rurik, the Swede, founded the Russian Empire. Close to 2,000,000 people of Swedish blood live in the United States.



DALARNA WELCOMES THE COMING GUEST

The region around Lake Siljan is popular with visitors. Many who, as an old Dal ballad says, feel its irresistible lure, pass the summer in the townships along its banks. This cottage is of the type usually rented to tourists.



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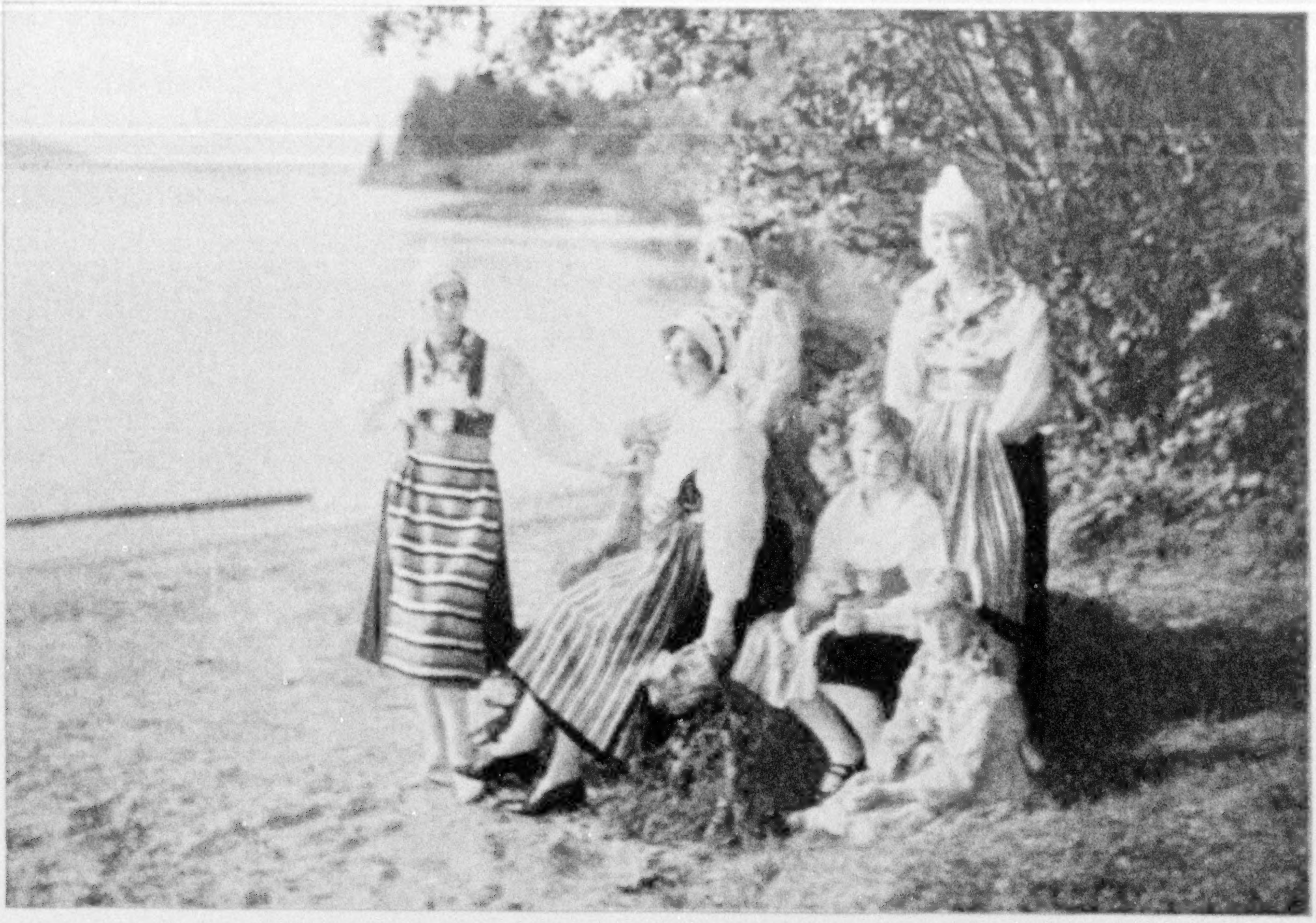
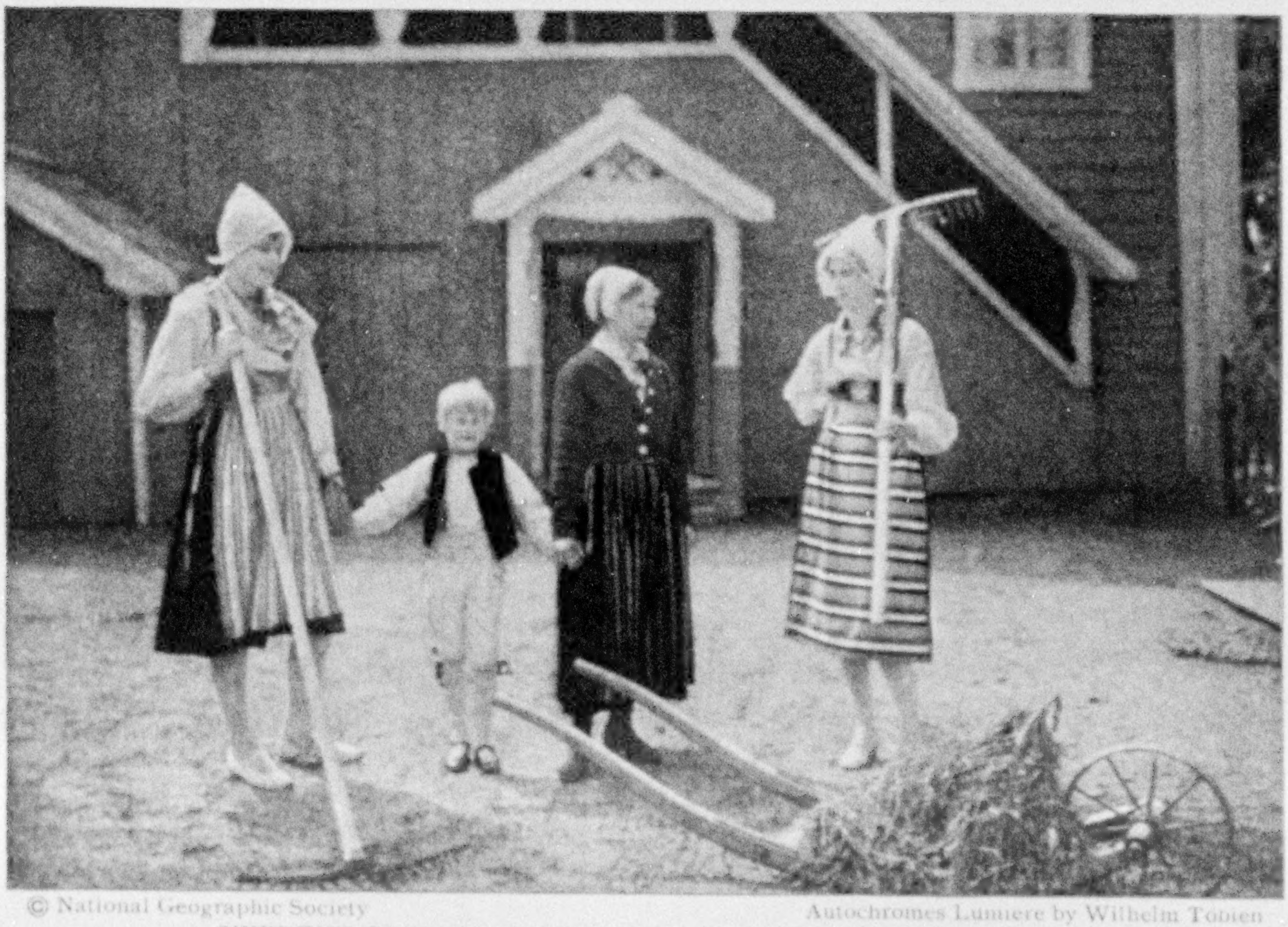
LADIES OF THE LAKE AND RIVER

Apron and skirt are separate, except in Rättvik, where they are sewed together. Stripes are characteristic of more than one parish. Broad ones, some Dal girls say, mean riches; narrow ones, poverty. A Gagnef girl sits beside two from Rättvik on the bench; one from Floda stands.



LAKE SILJAN IS THE "EYE OF DALARNA"

On its gently sloping shores cluster the pretty towns and villages which focus social and business life for the Dal folk of the surrounding countryside. It covers 110 square miles. Holidaymakers from Rättvik and Leksand.



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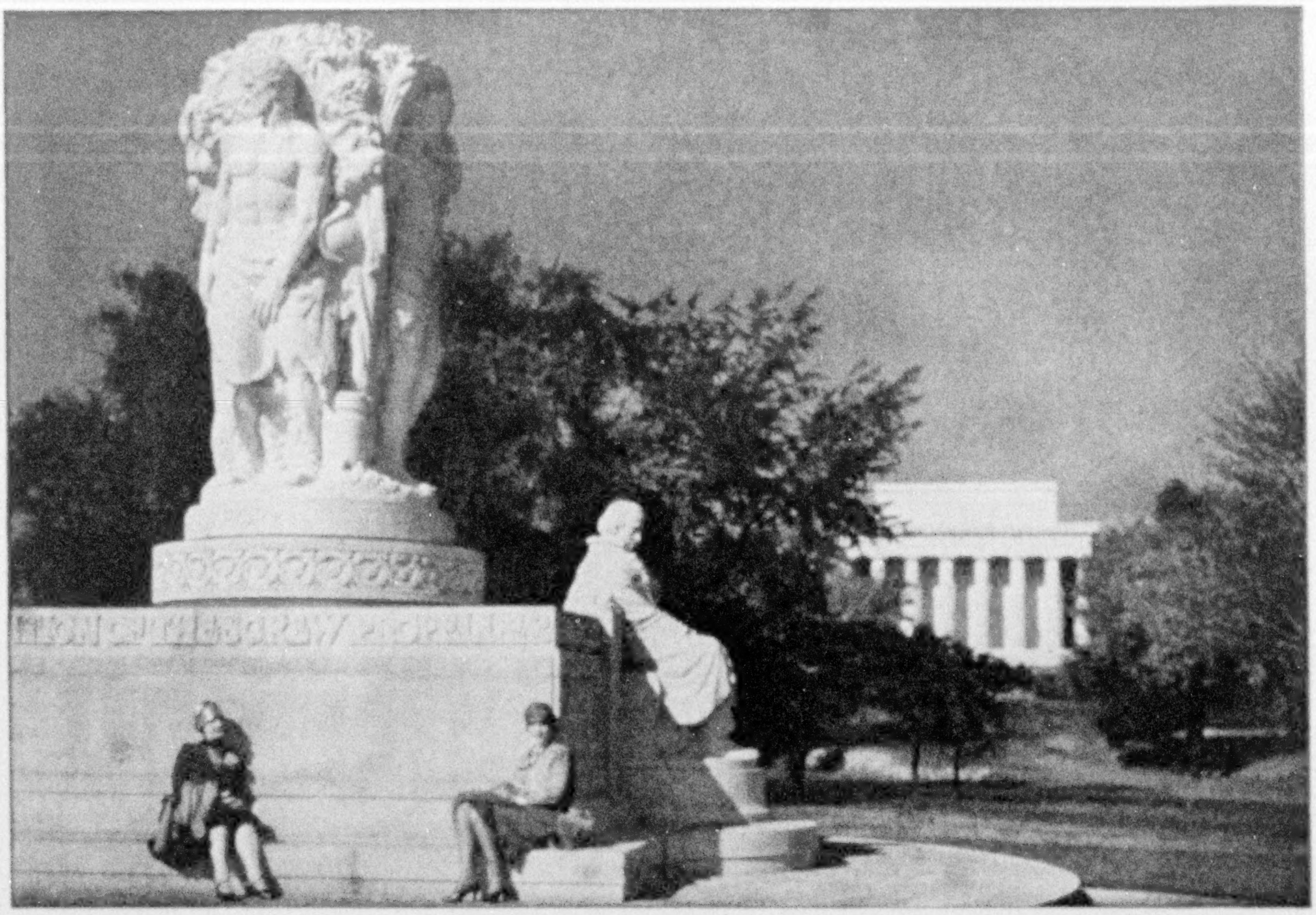
SWEDEN'S CLIMATE STIMULATES ACTIVITY AMONG ITS PEOPLE

Wherever they settle, the Swedes' thrift and industry are proverbial. Archeological finds disclose that Swedes traded with continental neighbors 4,000 years ago. Even then, iron ore was an item of export, as well as furs, dried fish, and horses. Women from around Lake Siljan.



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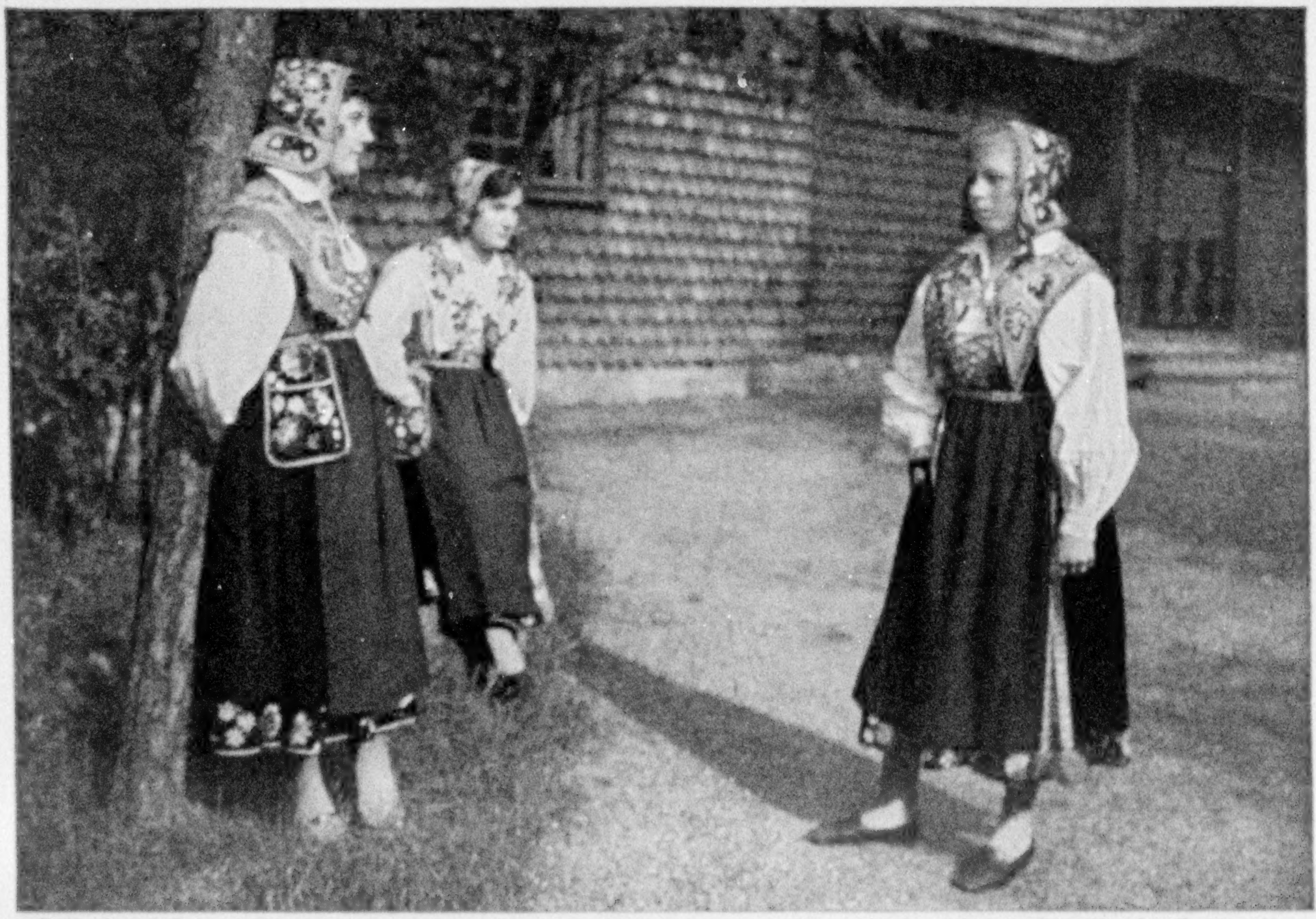
AMERICA'S CAPITAL DOES HONOR TO A SON OF SWEDEN

The monument to John Ericsson, inventor and engineer, stands near the Lincoln Memorial in Washington. The Crown Prince of Sweden participated in its dedication in May, 1926.



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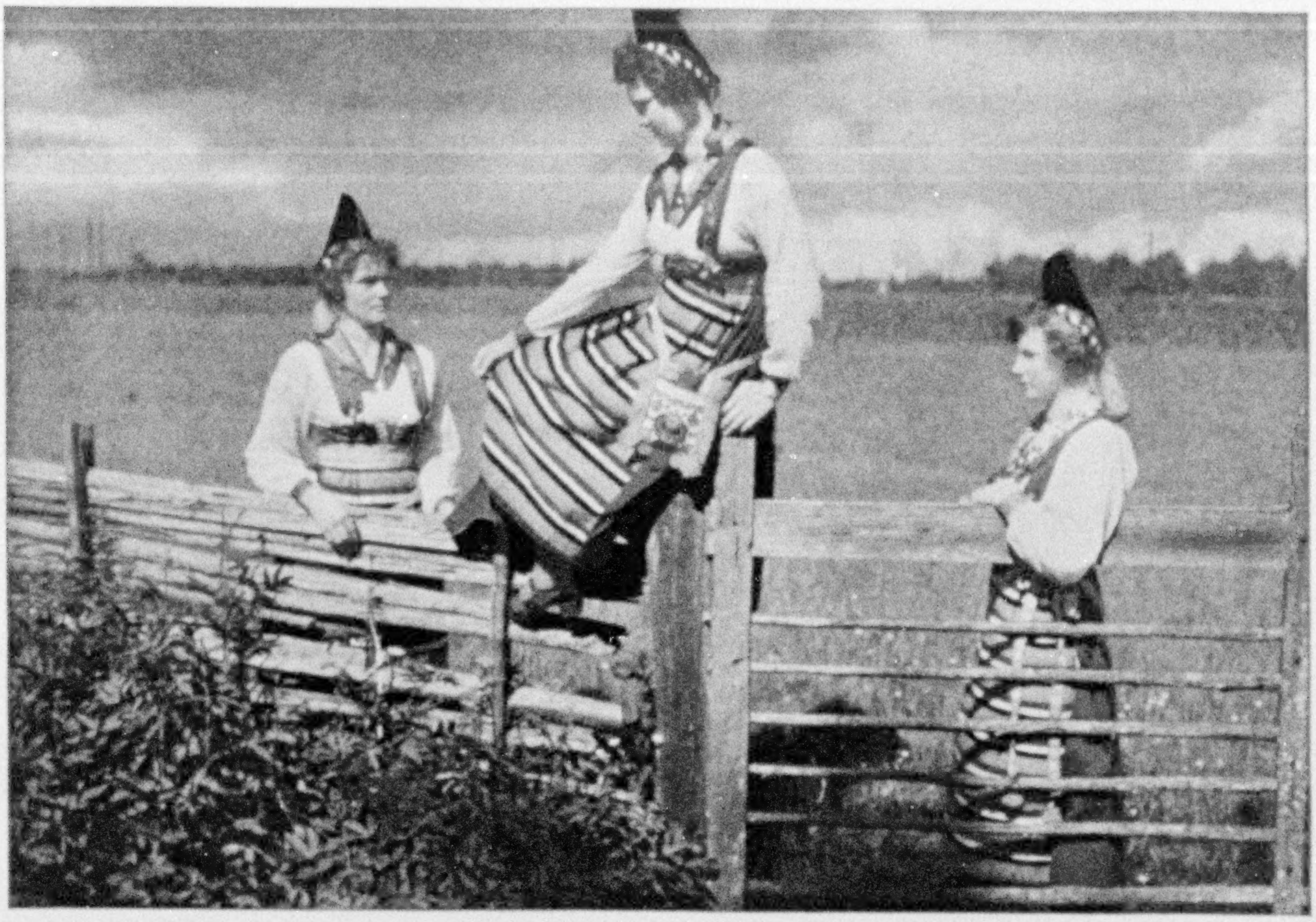
THEY DWELL BESIDE DALARNA'S STORIED FLOOD

Floda villagers live below Lake Siljan, on the western branch of the Dal River, "which slings her silver girdle round the waist of Sweden." On its broad back thousands of logs trek silently down to the sea.



RÄTTVIK LADIES ALSO POSE

After a day of hiking in the fields and woods these girls are waiting by the roadside for a conveyance to take them back home.

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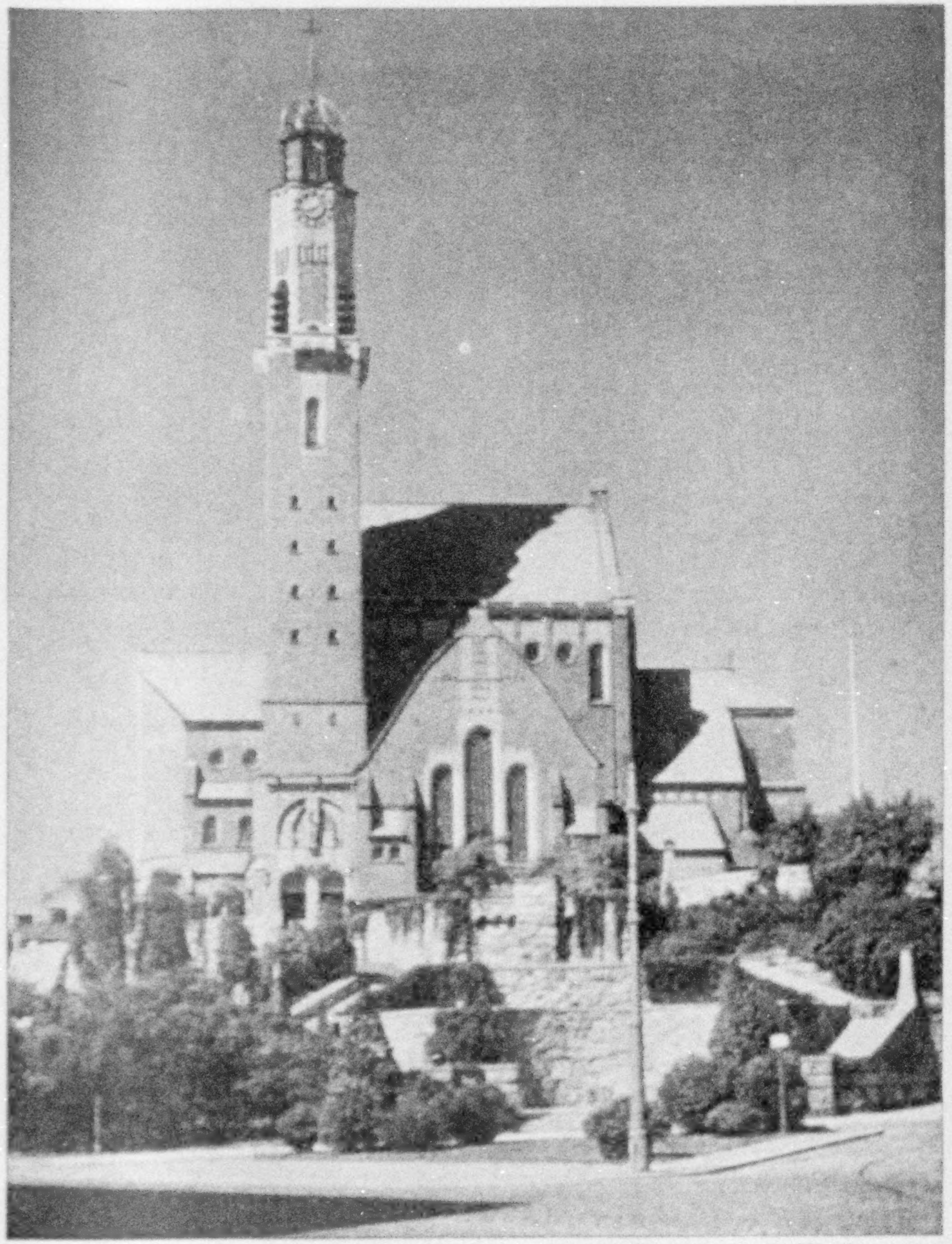
Autochromes Lumière by G. Heurlin

IN BODA LIFE GOES THE EVEN TENOR OF ITS WAY

Among Dal folk, young and old, man and maid, simplicity and dignity flourish, as a proud heritage of their past. Once a Dal peasant in Parliament attended a royal banquet, and, though he wore his native dress, he mingled with courtiers and noblemen in perfect self-possession.



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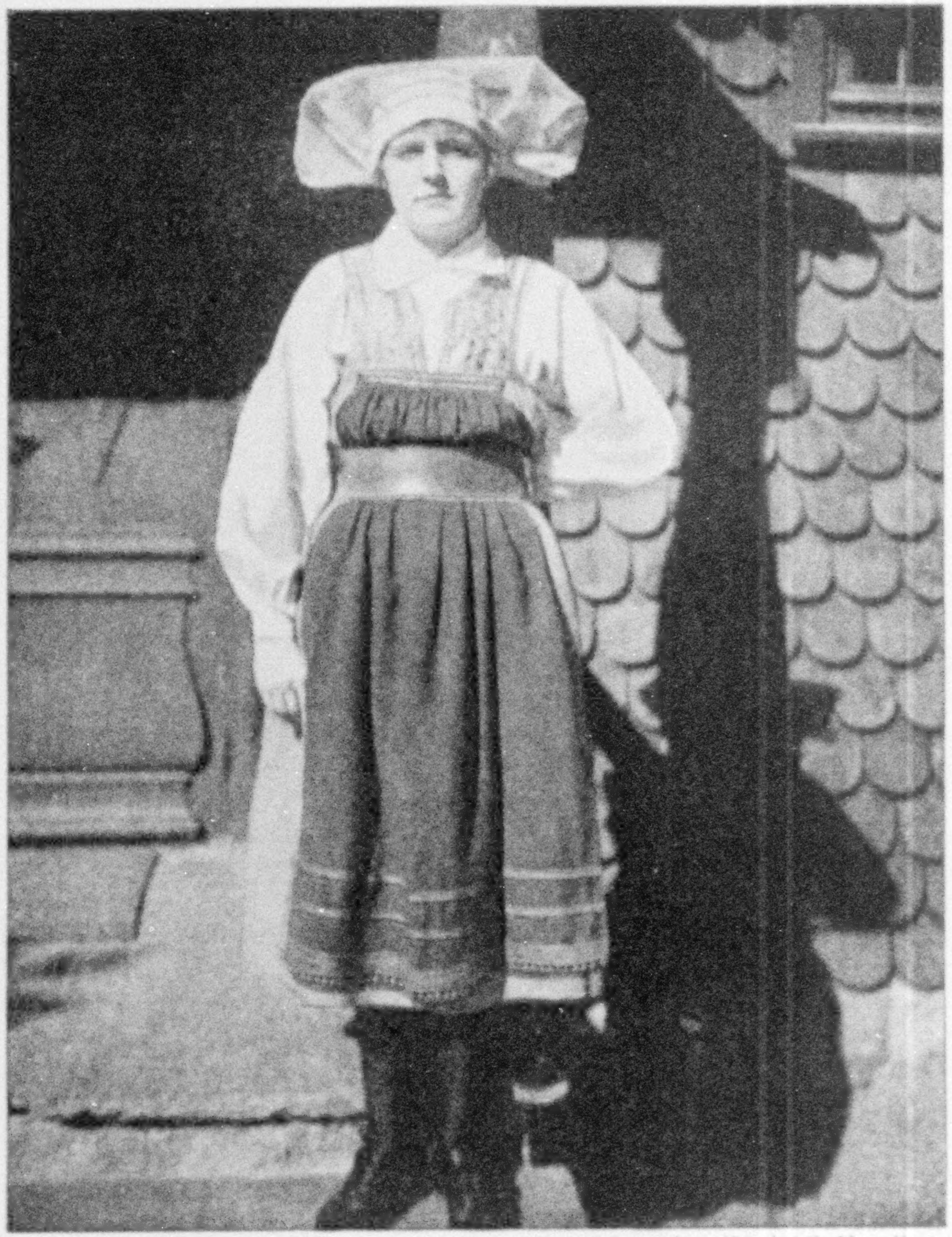
ENGELBREKT CHURCH HAS WALLS OF CLINKER

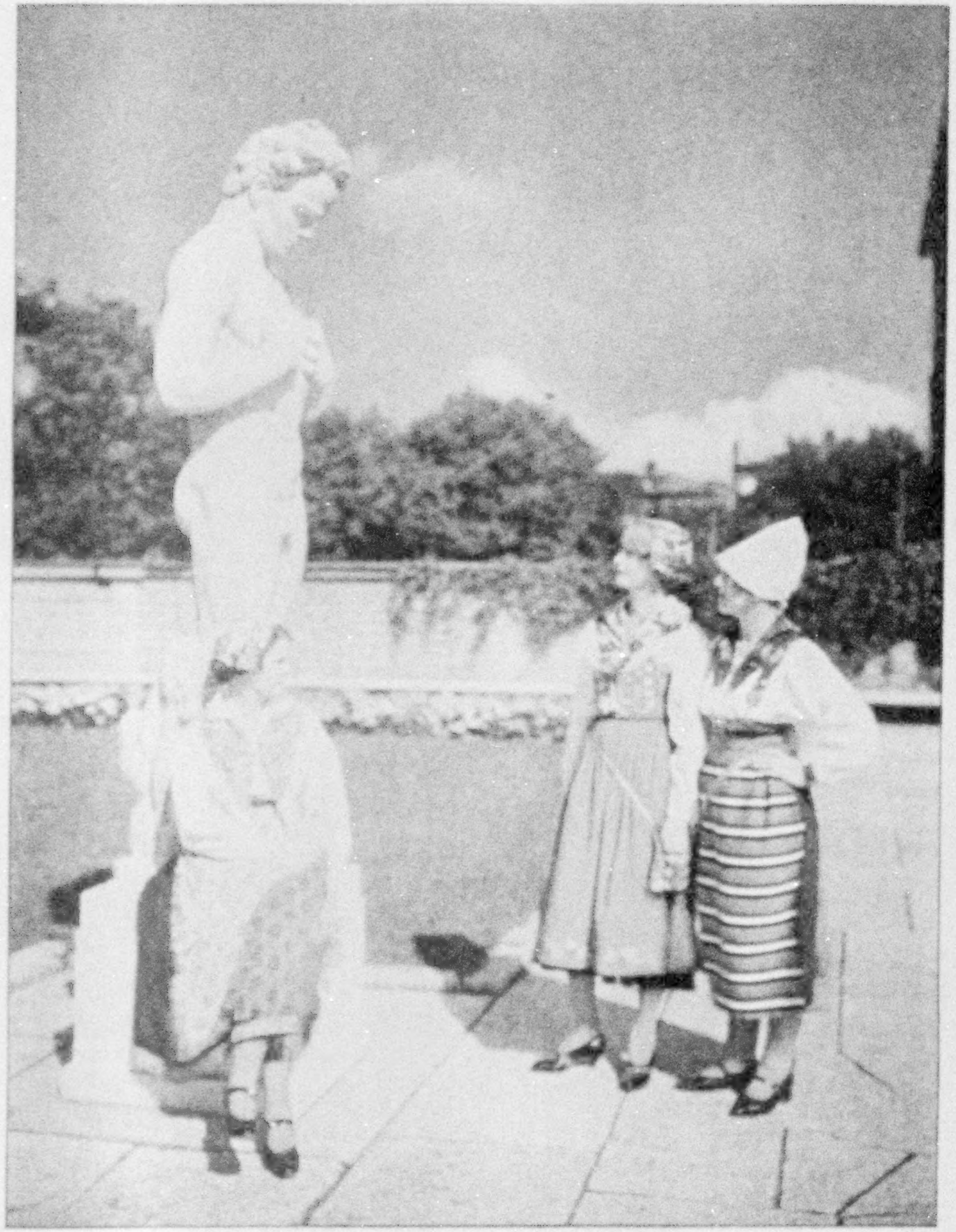
Stockholm's newest religious edifice juts its imposing red mass skyward from a cliff in a rocky part of the city. Clinker as building material has given such good results in Sweden that increasing use is now being made of it.



Autochrome Lumière by G. Heurlin

THE COMELY COMPATRIOT OF A PRINCE

A native of Södermanland Province, the duchy of Prince William, the King of Sweden's second son. The Prince is an author of ability, an internationally famous big-game hunter, and has lectured before the National Geographic Society at Washington on his field expeditions.



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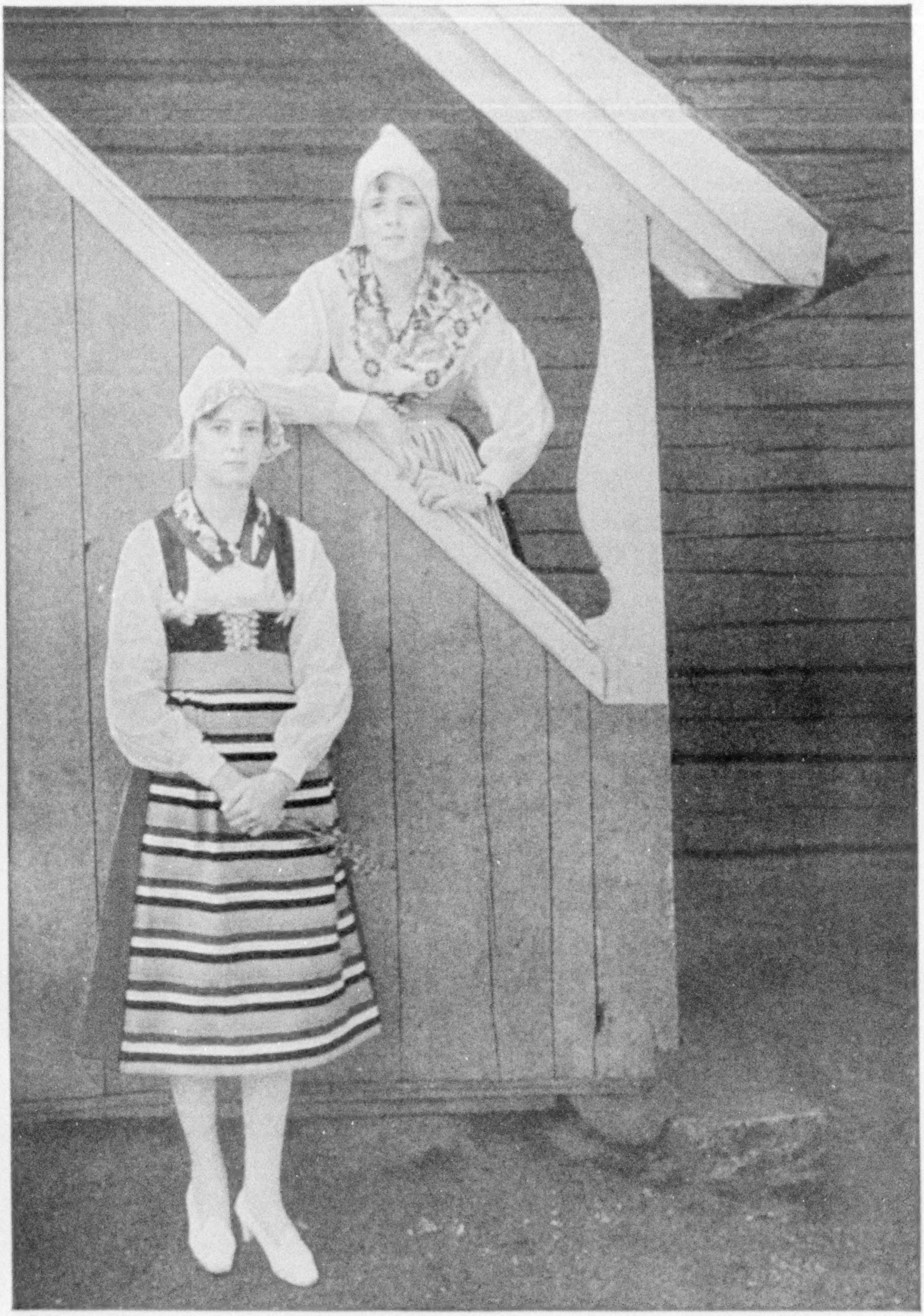
WAR AND COLD WERE FOES TO EARLY SWEDISH ART

Beyond the Viking's decorated shield and boats, art languished in Sweden till Christianity came with carved and painted Saints and Madonnas. In time, Sweden gave the world such rare artists as Sergel and Zorn.

Autochromes Lumière by G. Heurlin

A DWELLER IN A SWEDISH SAGA LAND

Värmland Province, between Lake Vänern and the Norwegian frontier, is the country of Selma Lagerlöf's "Gösta Berling." Americans know it also as the homeland of John Ericsson, designer of the *Monitor*.



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DAUGHTERS OF THE HEART OF SWEDEN

Quaint dress and old customs mark the folk of Dalarna (Dalecarlia) Province—a miniature Sweden. Especially is this true of certain villagers in its "eye," the smiling region around Lake Siljan, the homeland of these maids standing in the doorway of an old farmhouse at Leksand.

SWEDEN, LAND OF WHITE BIRCH AND WHITE COAL

By Alma Luise Olson

"THIS is Sweden," says the peasant of Dalarna (Dalecarlia), as he looks out upon the rolling pastures and birch-clad hills of the province dear to him as life. "Our ways are changing, of course. The good old days are no more. But you may still find a handful of us Dalecarlians who go on living as our fathers lived, tilling the same soil, hewing timber in the forests for our houses, spinning wool and flax for our clothes, hammering out copper and iron from our mines for utensils and tools."

With quiet dignity he towers in the doorway of his home, into which his gracious "Välkommen" bids strangers enter. The wind plays with the wide brim that gives his black hat a quaintly solemn Puritan air. But against the weathered gray of log walls he is a vivid figure in his long, single-breasted blue coat, his yellow buckskin breeches, red-wool stockings tasseled at the knee, low handmade shoes adorned with gleaming steel buckles.

Overhead, slender blades of grass of apple-green lightness shoot up from the sod of his thatched roof. Behind, framing the scene, stand silver trunks of stately birches, the graceful "white ladies" of the forests of central Sweden.

SWEDEN NEVER BOWED TO ALIEN RULE

"We are a proud and independent people," he continues. "Sweden, as you know, has never submitted to alien rule. Only once, for a brief century and a quarter, Sweden joined Denmark and Norway in experimenting with a joint sovereignty. But we did not like the iron hand of our Danish kinsmen.

"In the Stockholm 'Blood Bath' of 1520, King Christian II of Denmark beheaded more than 80 Swedish nobles, therewith sealing his own destiny. It was that act of tyranny which led young Gustavus Vasa, later king for 37 years, to rouse the strong men of Dalecarlia to the country's defense. So one of the most illustrious chapters of Swedish history has been written here" (see, also, Color Plate VIII).

The blue eyes glow with the fervor of conviction. There is a challenging ring in the sure, soft-spoken words. "Know Dalecarlia and you will know the very heart of Sweden."

PLOWING UP TRADITIONS A THOUSAND YEARS OLD

But the landowner of Skåne goes a step further. Within view of crumbling fortress or surviving splendor of medieval château, where lazy swans swim forgetfully in the encircling moat, he halts in the shade of the widespreading beeches that line his fields of sugar beets or grain. He is willing, and mentally far from unprepared, to turn antiquarian for the moment.

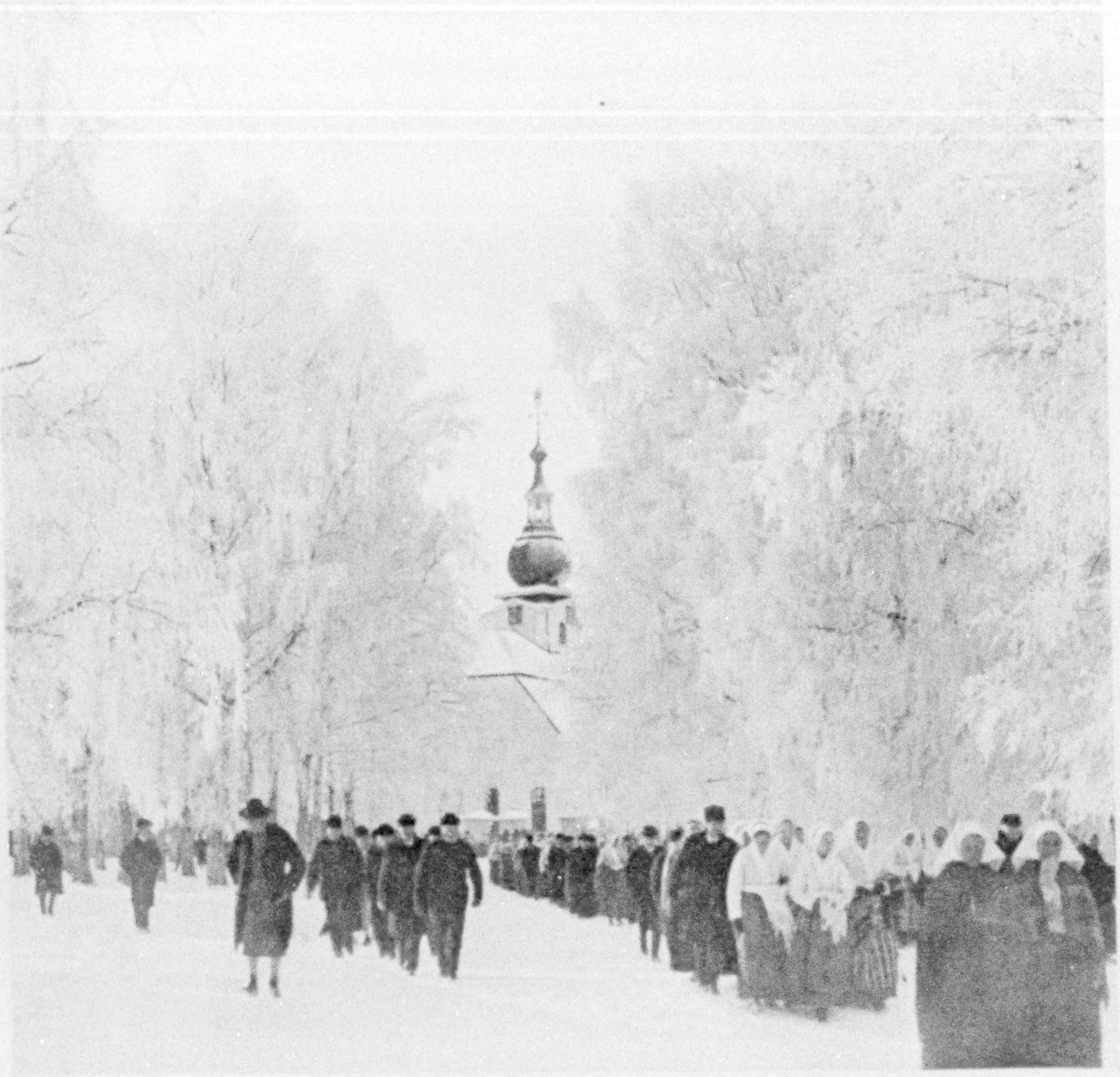
"The ice sheet slipped off this southern tip of the Scandinavian Peninsula ten or fifteen thousand years ago," he begins. "Our scientists find traces of a civilization not unlike our own running back through seventy centuries and more. Our rune stones are not all deciphered; some of our Viking mounds are still unexplored. Not long ago we unearthed a grave from the Bronze Age. Here in Skåne"—lovingly he slurs the long *o* sound of the vowel å—"we turn up thousand-year-old traditions with our very plowshares!" (See page 451.)

Were it not for his imperturbable poise, he might be off, at a signal, to search for the cradle or one of the cradles of the human race. But quietly he turns instead to historical fact, as he would like to read it: "Once Skåne was an independent kingdom in itself." . . . He checks his flow of words and, chuckling, adds: "Know Skåne and you really do not need to know the rest of Sweden!"

STOCKHOLM A MODERN, BEAUTIFUL CAPITAL

In Stockholm the city-dweller, born into an atmosphere of Old World leisure and acquiring by choice the ultramodern conveniences that mechanical genius contributes to our age, wanders out to enjoy the lustrous tranquillity of one of the "white nights" of the northern summer.

XUM



Photograph by Gerda Söderlund

A DALECARLIA CONGREGATION LEAVING ONE OF SCANDINAVIA'S LARGEST CHURCHES

Leksand Parish Church in Dalarna (Dalecarlia) is noted for its size, having accommodations for 5 000 worshipers. Swedish soldiers, returning from captivity in Russia, built it about 1700. Visitors come from afar to watch the Dal folk in their quaint costumes walk or drive to the church along an avenue of majestic birches.

He passes the magnificent willows of King's Gardens and halts on Norrbro, North Bridge, to listen to the singing, foamy waters under its span. It forms a link between the old "city between the bridges," with its medieval quaintness of narrow lanes, and the newer Stockholm, with its many public buildings impressively modern in design, which suggest something of the splendor that legend and history have cast over the age of the Renaissance (see, also, Color Plates II, VIII, and XIV, and text, pp. 403 to 424).

Before him rises the façade of the House of Parliament. "With the Socialists in the majority, things are in a bad way for our country," he reflects gloomily. But he catches the incongruity in his fears, too, as he faces the commanding simplicity of the massive Royal Palace. Within its walls, for more than a century, rulers of the Bernadotte line have held the reins of a limited monarchy, untouched by the terrors of revolution or the tumult of war.

The quivering beauty of the amethyst twilight, which before long will begin to throb with the glow of a ruby dawn, possesses his soul. And love for his capital city, of silvery waterways and emerald islands, conquers doubts.

"Courage to experiment with new forms of the changing social order, ranging widely from statecraft to architecture," he reflects, "and wisdom to direct these experiments, rooted firmly in past experience, toward evolutionary progress—something of that courage and that wisdom is the spirit of Stockholm, of Sweden, to-day."

SWEDEN GUARDS ITS MAIN SOURCE OF WEALTH—THE FOREST

In the solitudes of the Norrland forests the frontiersman has swung his ax during the brief dusk that is high noon of the winter day. Throwing the logs on the ice-locked rivers, natural floating channels for the timber industry of the far north, he waits for the release that comes with the thaws of spring.

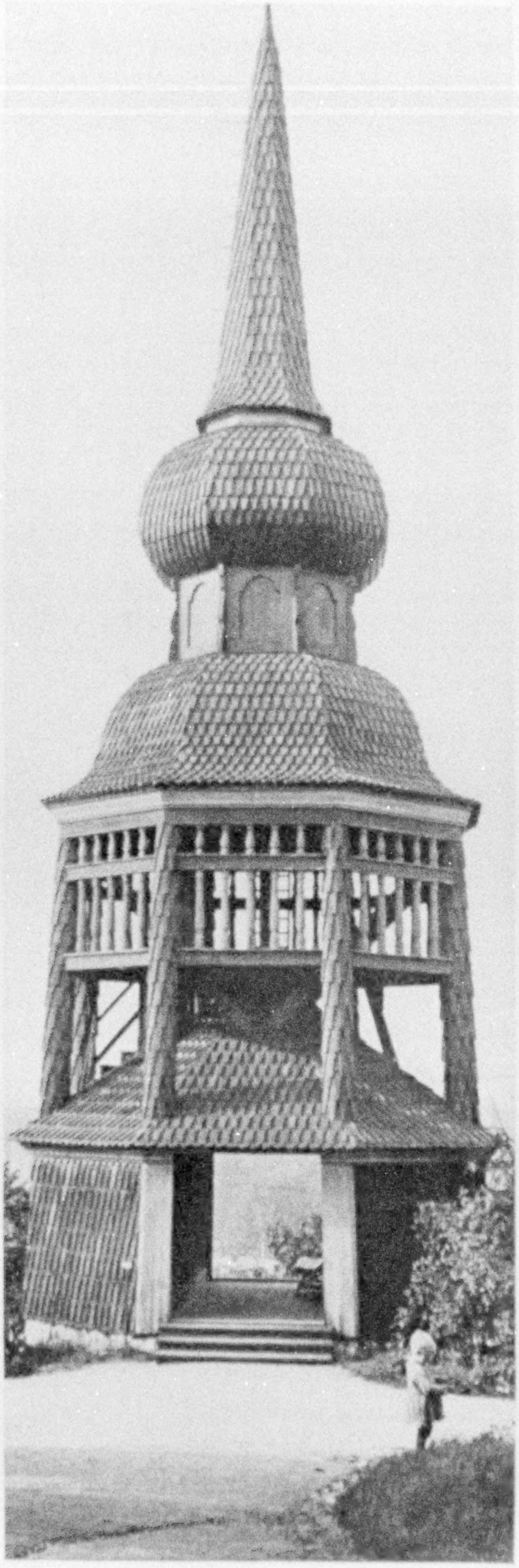
Under his hand the primeval forest has almost vanished, but the regrowth of spruce and fir and pine is straight and tall. For several decades the Swedish State, stepping in to check indiscriminate waste of virgin forest, has been a zealous guardian of this its most important source of wealth.

By midsummer the rivers will have carried their cargo of logs, numbered by the millions, well down to sorting boom, near the mills, on the eastern coast, where the freighters lie in port. Hope sings in the lumberman's heart as, fascinated, he watches that silent trek of the logs toward the sea (see page 463).

"WHITE COAL" CONQUERS THE NORTHERN WILDERNESS

It is the season of light. On the upper reaches of the Norrland rivers the midnight sun blazes unrelentingly on glaciers and snow-capped peaks, converting them into rushing torrents and swift-surging rapids. Modern industry steps in and in turn converts that tremendous natural force into "white coal" for the country (see, also, text, page 473).

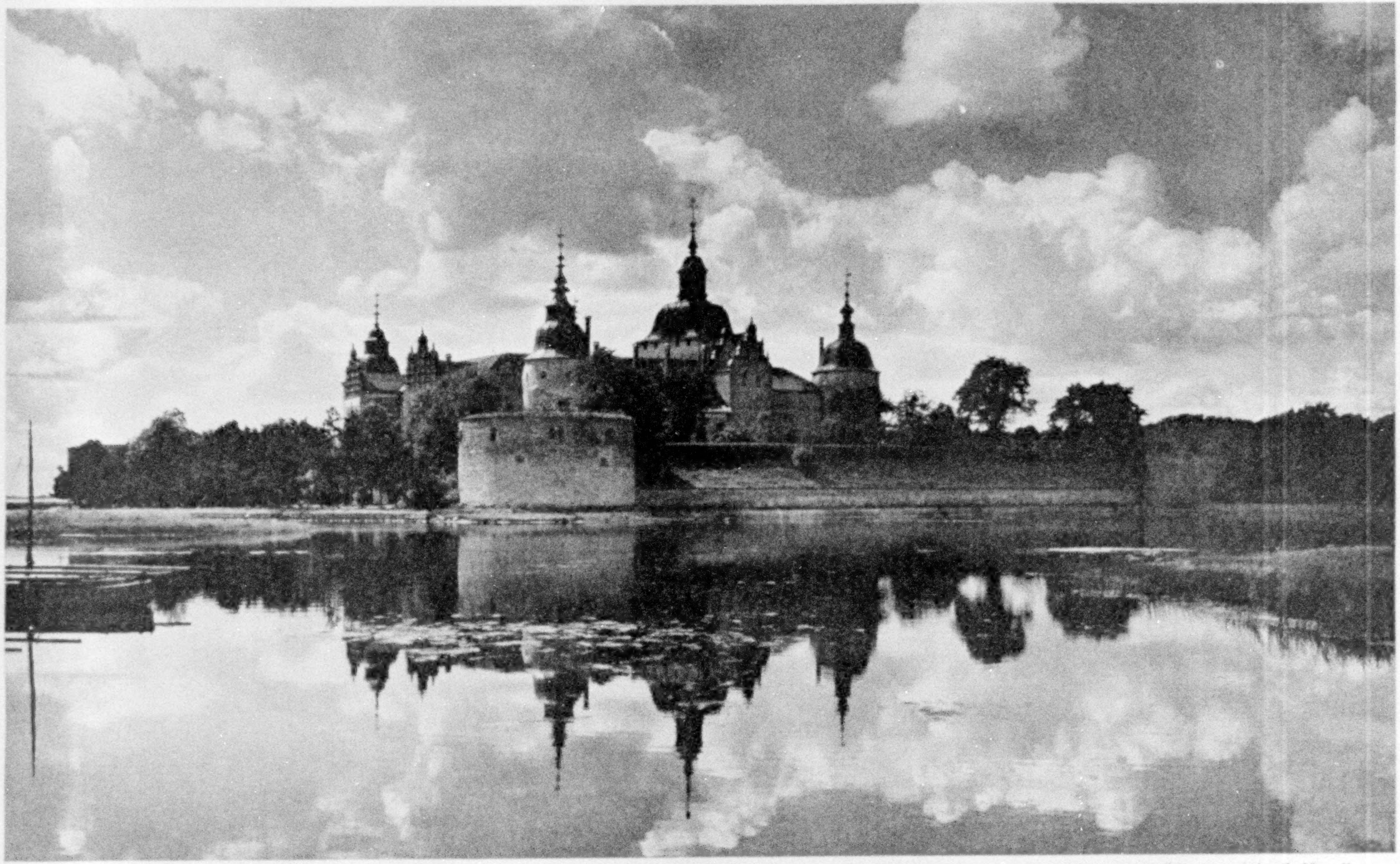
Electricity is conquering the wilderness of the north. White coal, not black, feeds the trains that in unending procession haul ore to seaports from the huge mountains of iron in the arctic regions. For years the ore has been quarried down their sides, but still the mountains tower, with hundreds of millions of tons as potential



Photograph by Donald McLeish

THE BELLTOWER OF HÅSJÖ

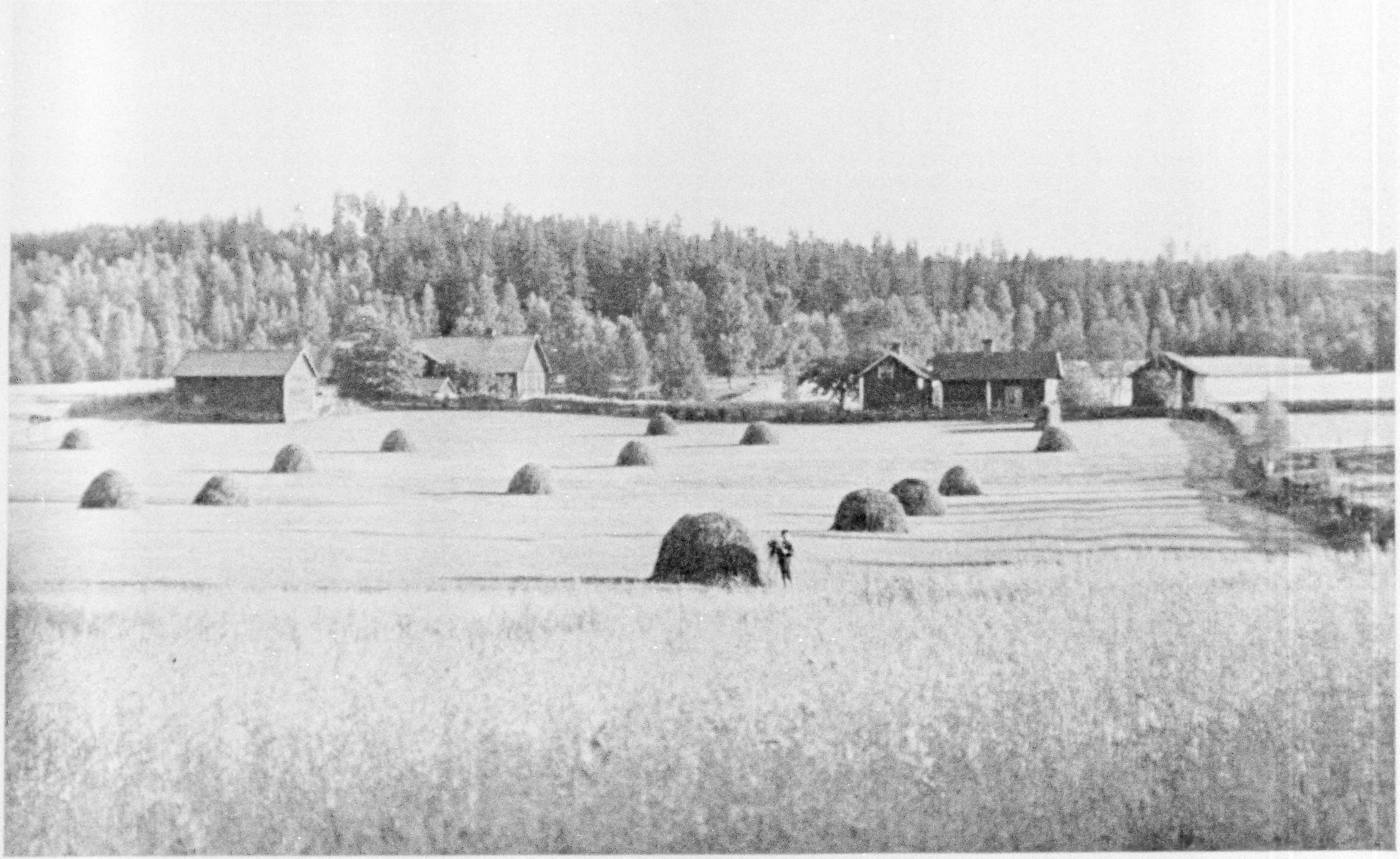
Such structures, standing apart from their church, are peculiar examples of the wood architecture inherited from the Middle Ages and further developed by the Renaissance.



Photograph by G. Heurlin

KALMAR CASTLE, CHIEF HISTORIC TREASURE OF "THE KEY OF THE KINGDOM"

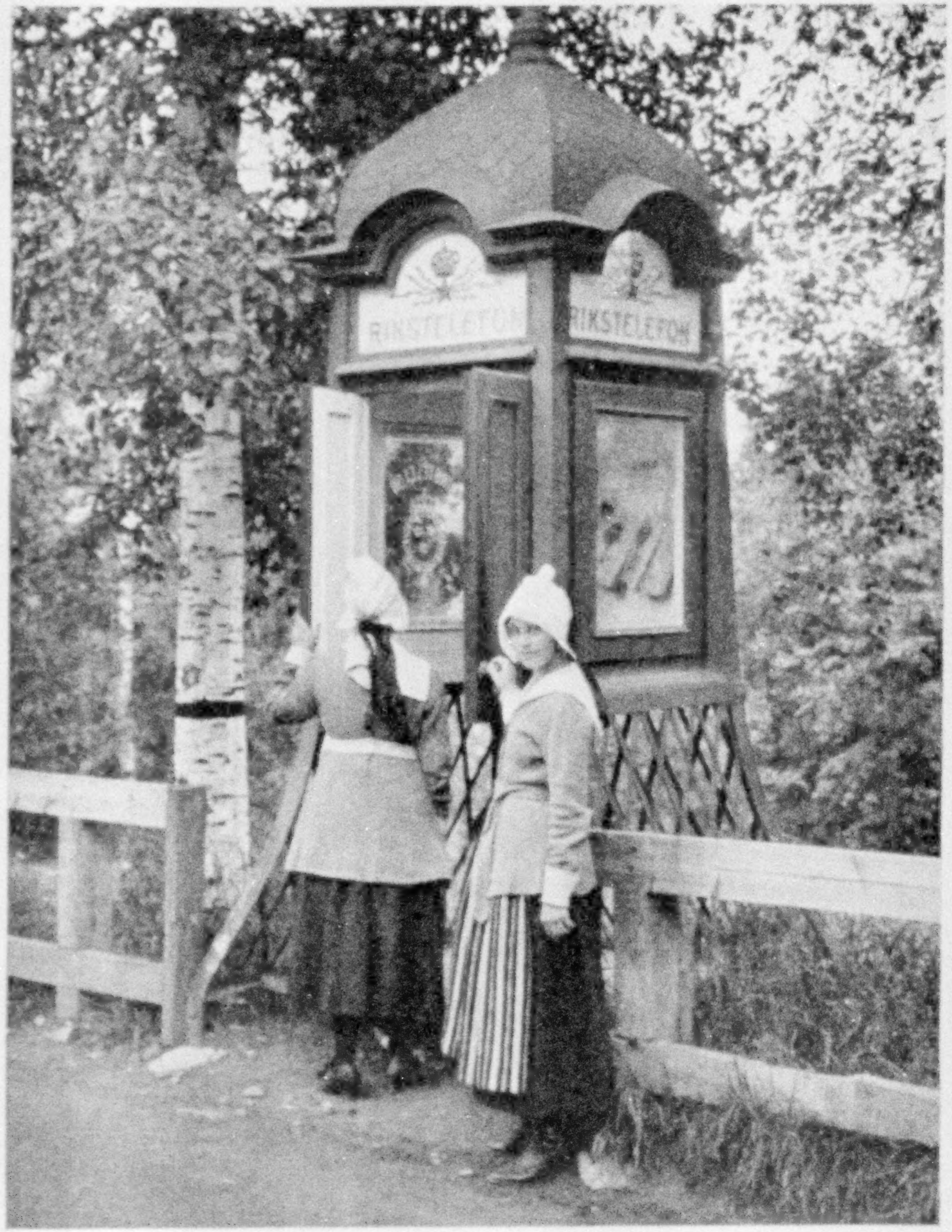
This large square edifice, opposite the island of Öland, on the east coast, with ramparts, moats, and five towers, was built in the 12th century, enlarged in the latter half of the 16th, and restored in later years. Between 1307 and 1611 it withstood no fewer than 24 sieges. Here Queen Margaret effected the union of the three Scandinavian powers, Norway, Denmark, and Sweden, in 1397 (see, also, text, page 457).



Photograph by G. Heurlin

THE SWEDISH FARMER LOOKS OUT OVER A THRIFTY, FRIENDLY LANDSCAPE AND CALLS IT GOOD

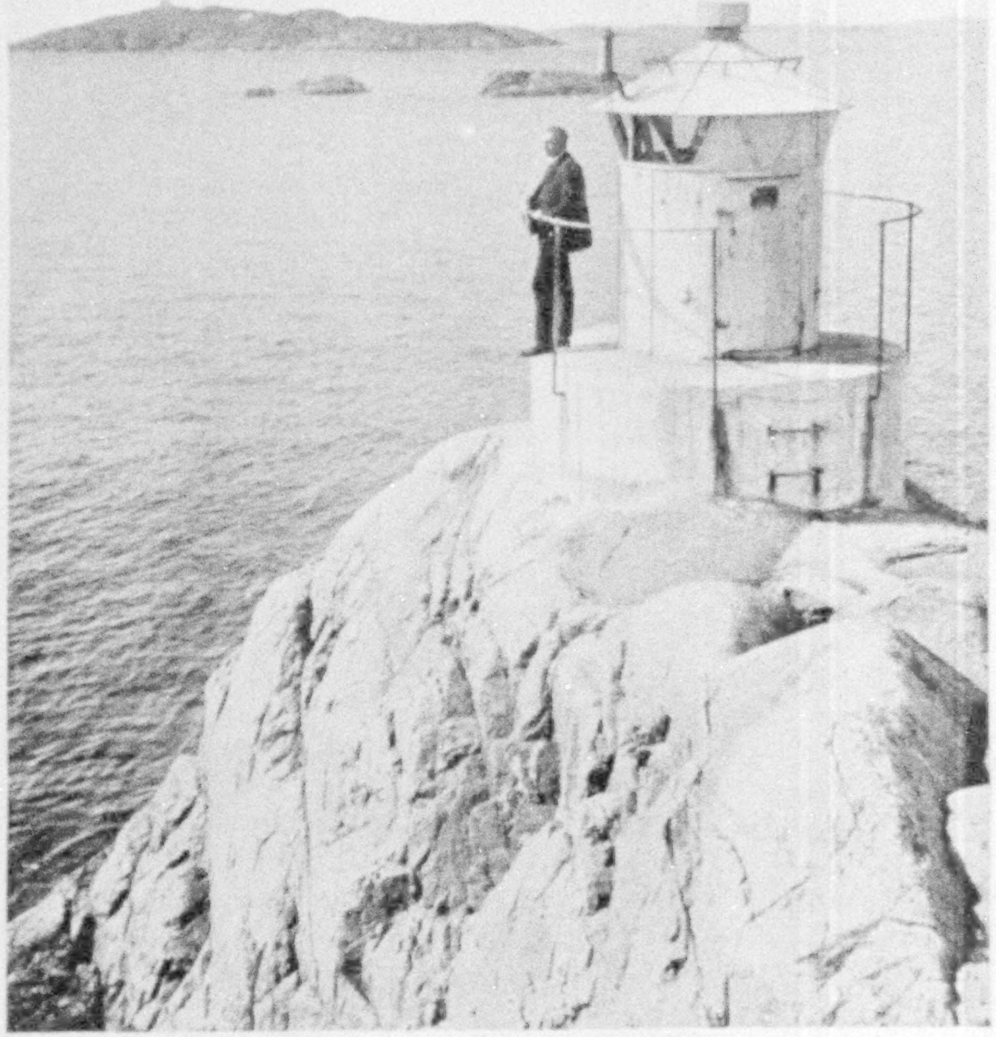
Most country houses are of wood, painted red, with white shutters and trimmings.



© E. M. Newman

"IN THE WINK OF AN EYE" SHE GETS HER NUMBER!

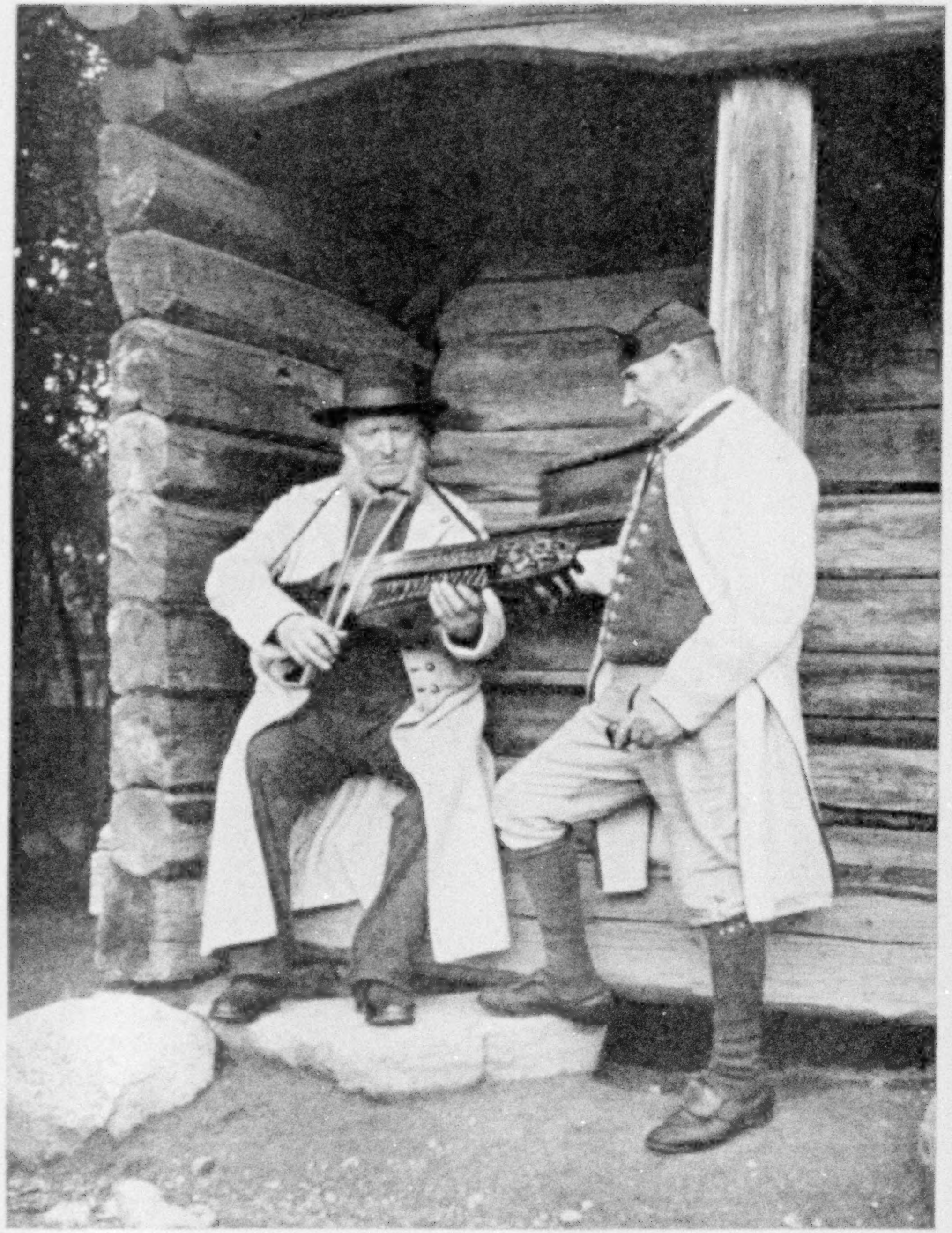
Sweden has one of the most highly developed telephone systems in the world (see, also, text, page 469); even the small towns have their street booths. Yet, side by side with a modern invention such as the telephone, Leksand and other more remote villages will use an antiquated device for fire alarms, whereby one "breaks the glass and blows the horn." But electrical fire-alarm boxes are gradually being substituted.



Photograph by Donald McLeish

ROCKY ISLANDS OF THE WEST COAST NEAR GÖTEBORG

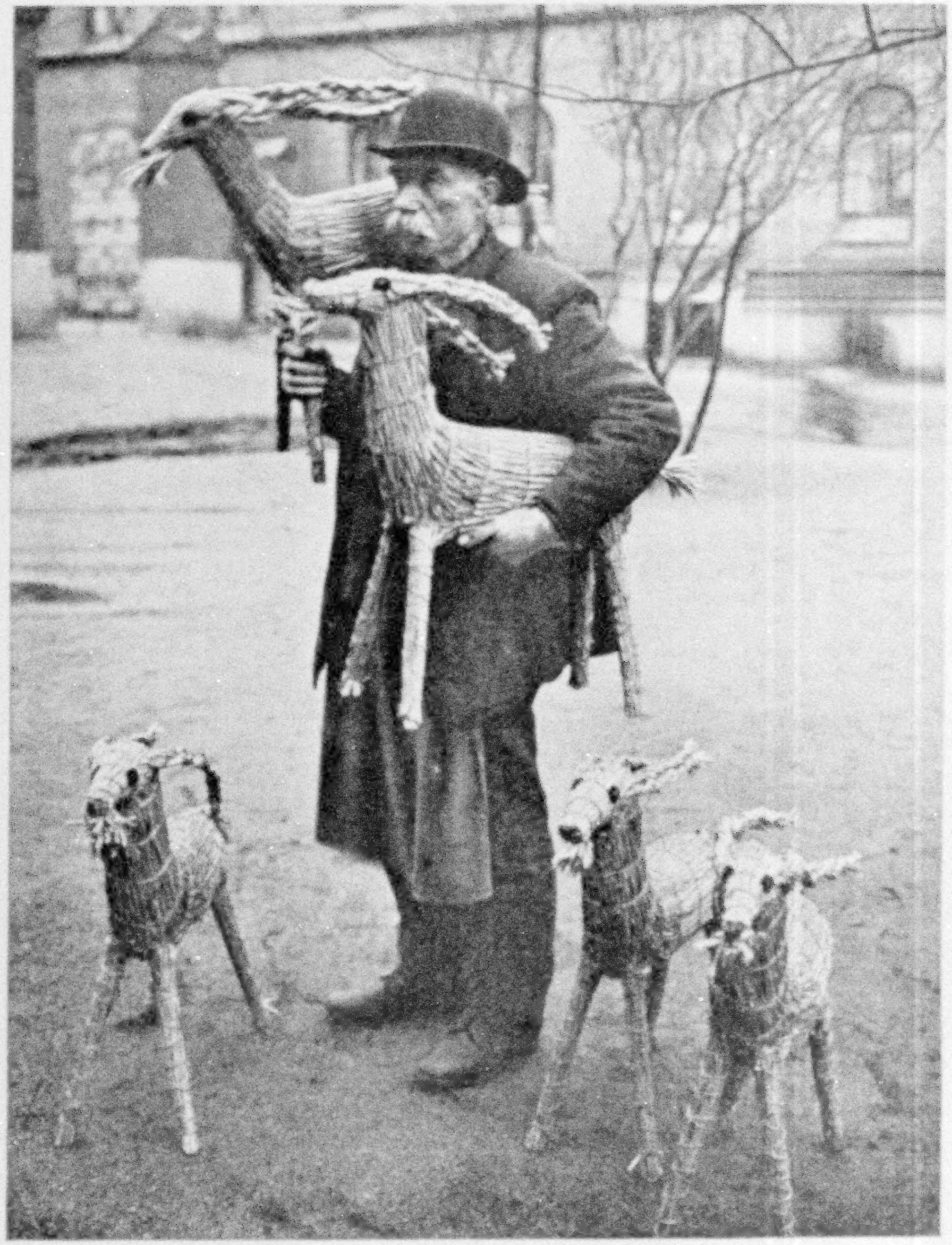
Many of the islets on the southwest and east coasts of Sweden are crowned with small lighthouses, which are regulated by clockwork and do not require attention for months. The automatic light buoys which guide ships through the Panama Canal and other important channels are based on a Swedish invention. Modifications of them are used as light signals for railways, city traffic, and air routes.



Photograph by Donald McLeish

A MUSICIAN OF HÄLSINGLAND PROVINCE

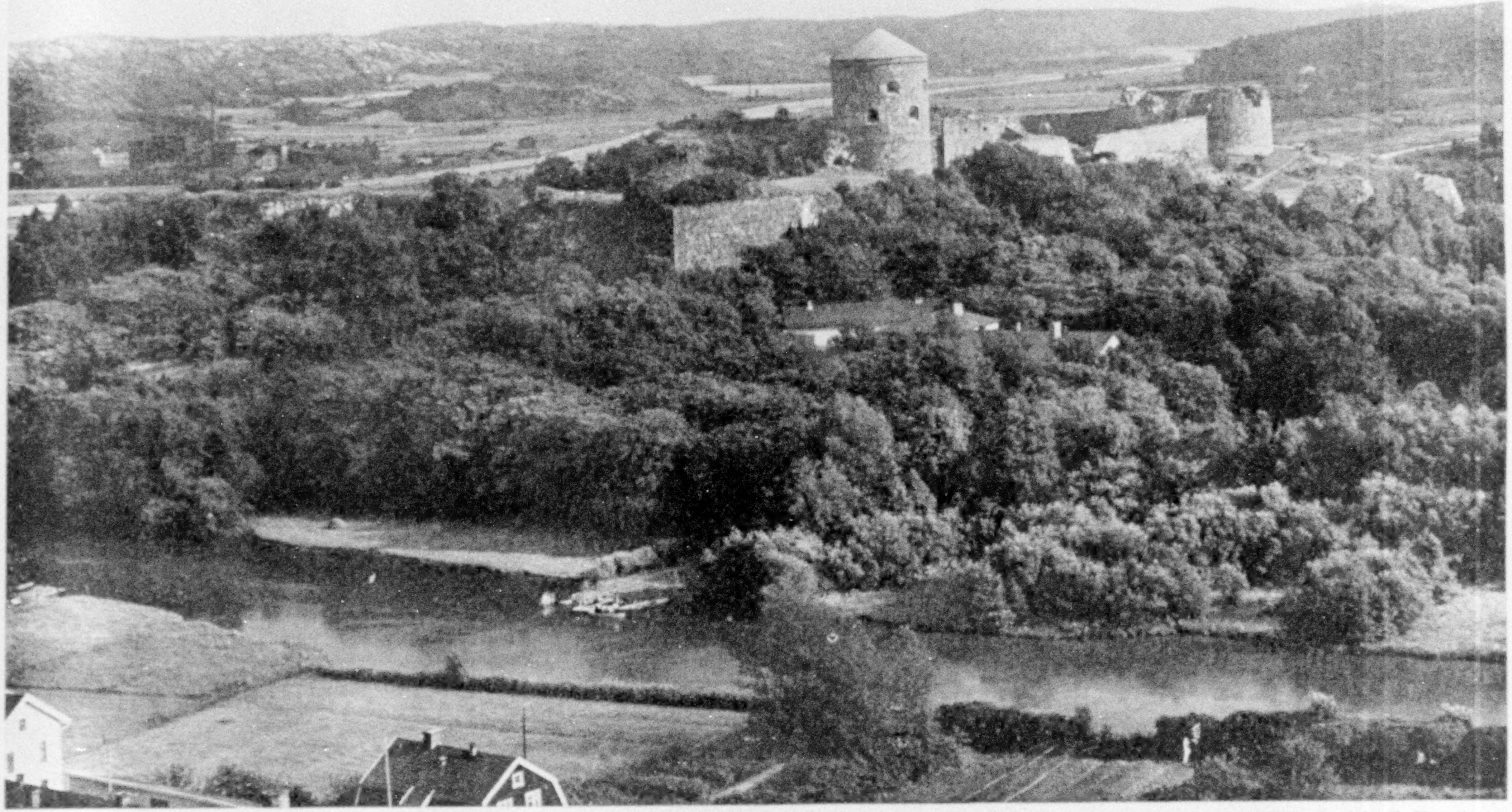
He plays the old, irregularly shaped Swedish "key harp." The musician and his melody-making instruments are in great demand on gala days, especially in the neighboring province of Dalarna, where men and maidens still dance around the Maypole on Midsummer Eve (see page 473).



Photograph by G. Heurlin

PEDDLING "YULE BUCKS" OF STRAW

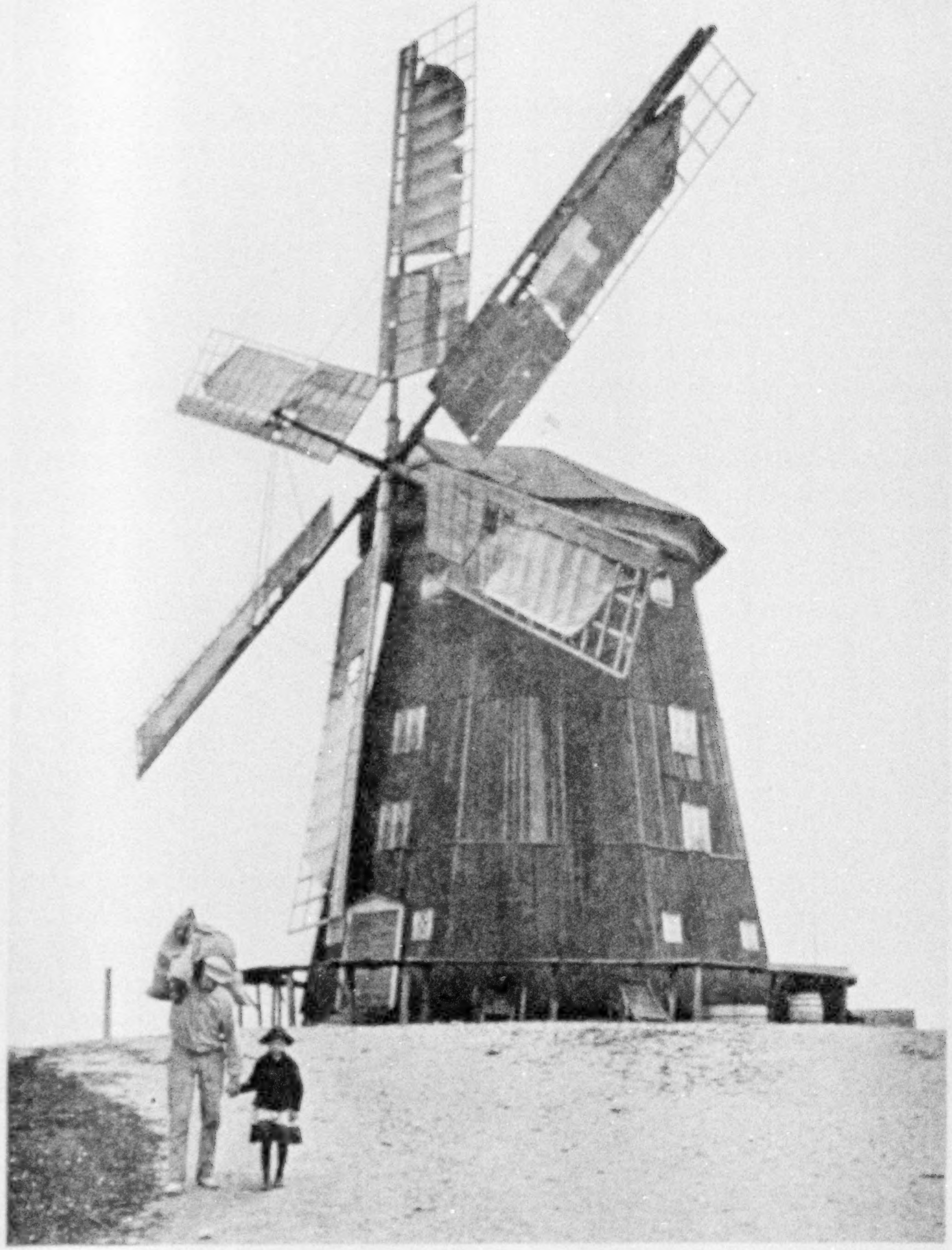
Jul festivities and preparations begin long beforehand, and last well into January. Even the animals are not forgotten; they receive a special feed in their stalls, for all creatures, says the Swede, should have cause for joy at Christmas time.

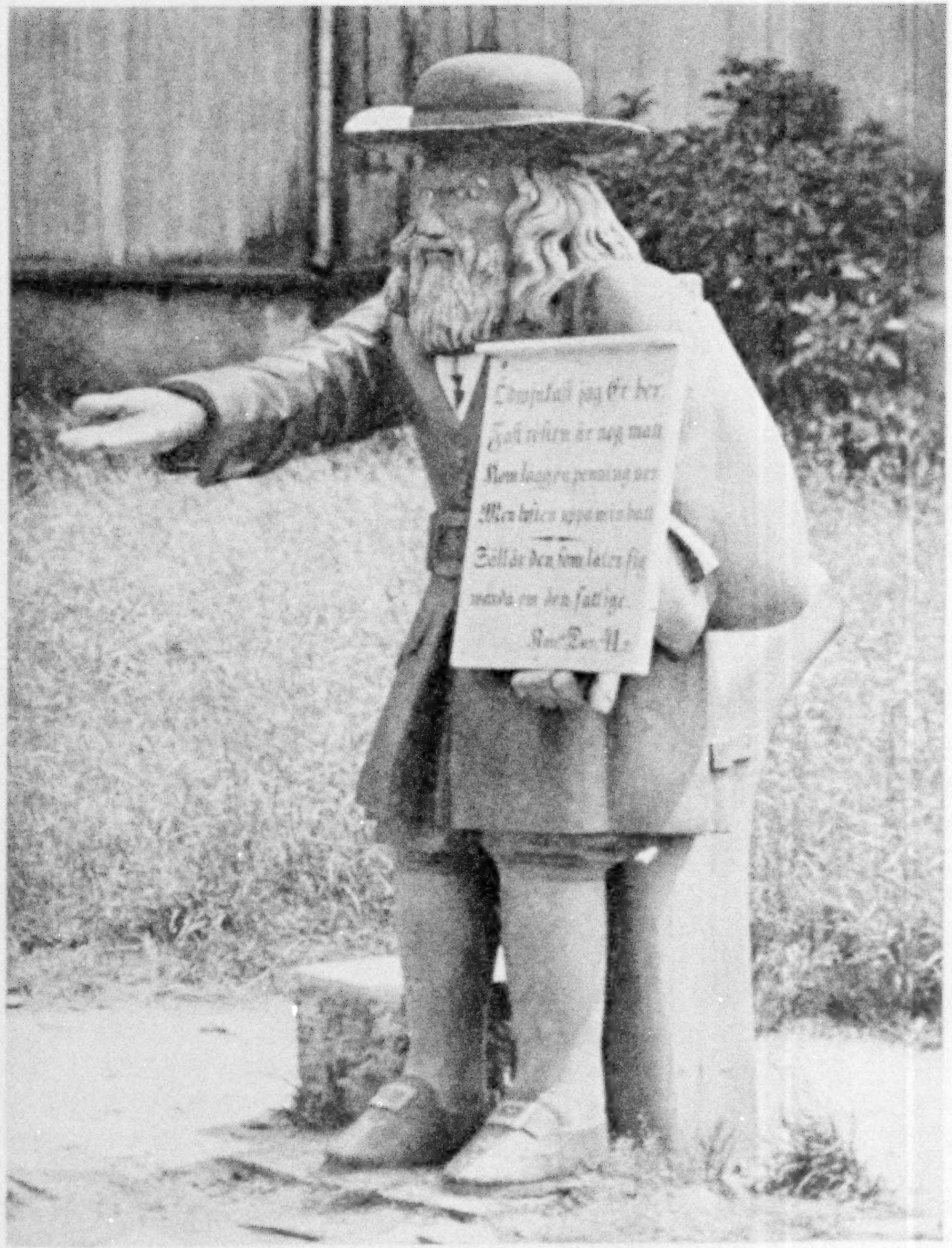


Photograph by G. Heurlin

BOHUS CASTLE TURNS BACK THE HAND OF TIME 600 YEARS

Built by a king of Norway in 1308, this fortress near Göteborg was in its day the most formidable in the north. Its two ruined towers are now called "father's hat and mother's cap." Travelers taking the Göta Canal trip (see, also, pages 454 and 455) come in view of this castle as their steamer slowly proceeds up the Göta River.





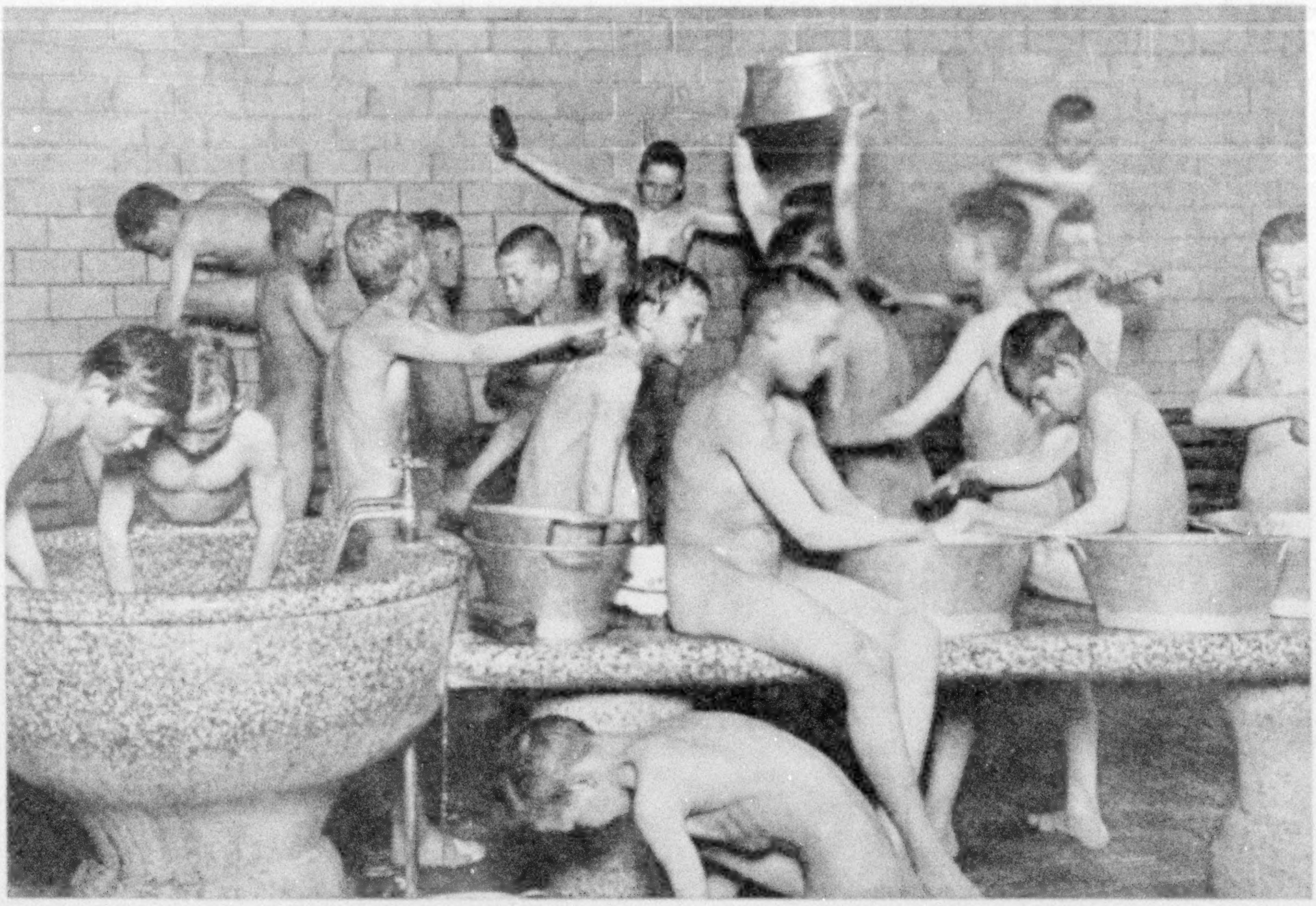
Photographs by G. Heurlin

A LITTLE TOUCH OF HOLLAND

Windmills are rare on the Swedish mainland, but a number are left on the island of Öland. If the wind gets too strong, the wings can be folded by means of the ropes attached at the center. Baltic Öland is very ancient. Stone Age people inhabited it. Later came Romans and Anglo-Saxons, leaving coins of their period as proof of occupancy.

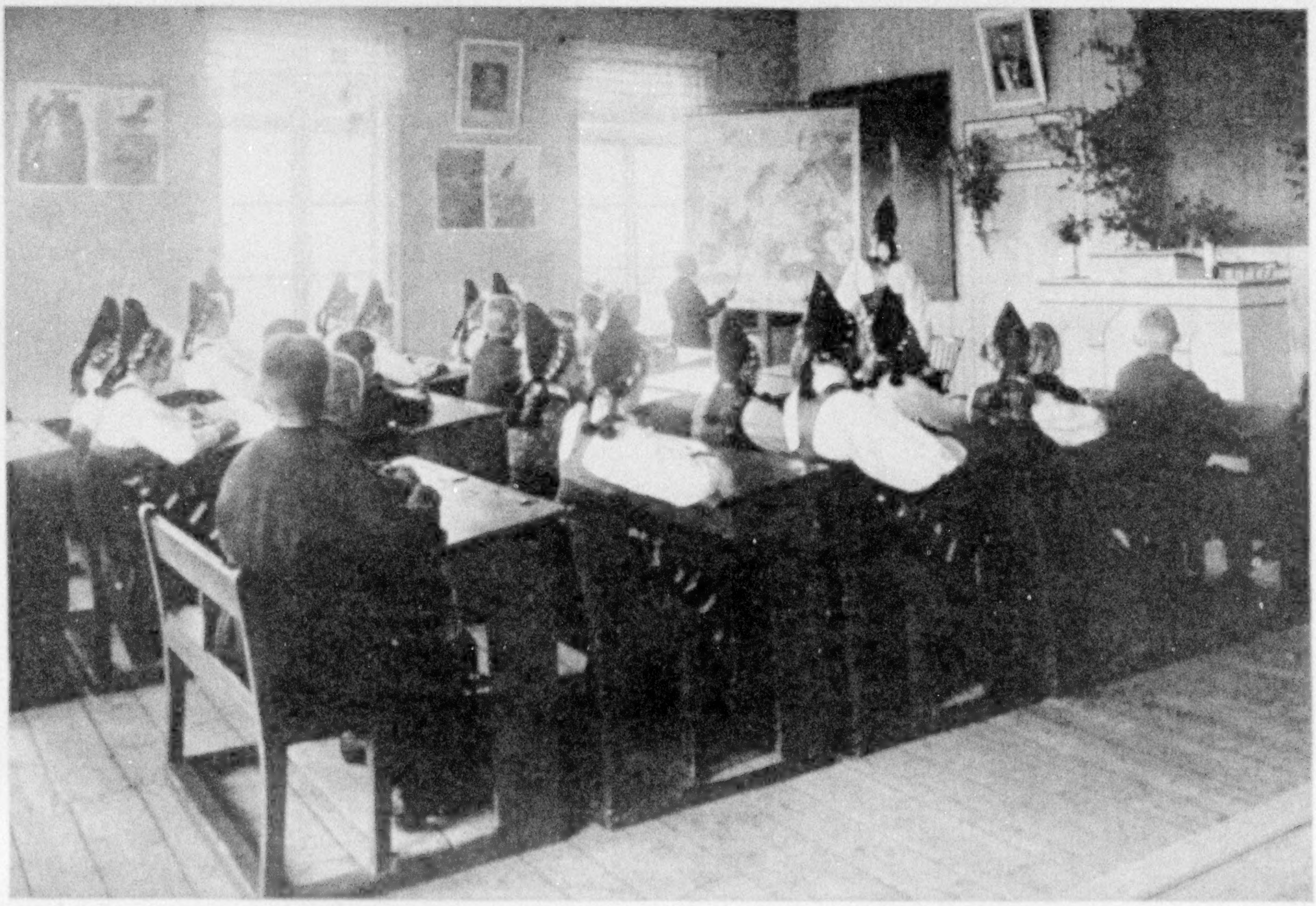
"BLESSED IS HE THAT CONSIDERETH THE POOR"

This peculiar poor box stands outside a church of Döderhult, in Småland. The coin slit is under the hat. The inscription, ending with the quotation from the Psalms, may be rendered freely as follows: "I beg you kindly, though my voice is weak, perhaps, to come and drop a coin. But before you do so, lift up my hat."



IN SWEDEN'S SCHOOLS CLEANLINESS GOES HAND IN HAND WITH KNOWLEDGE

There is no large bath or swimming pool in small communities, but a simple arrangement of tubs in a circle does just as well. The children wash and scrub one another.



Photograph by Gerda Söderlund

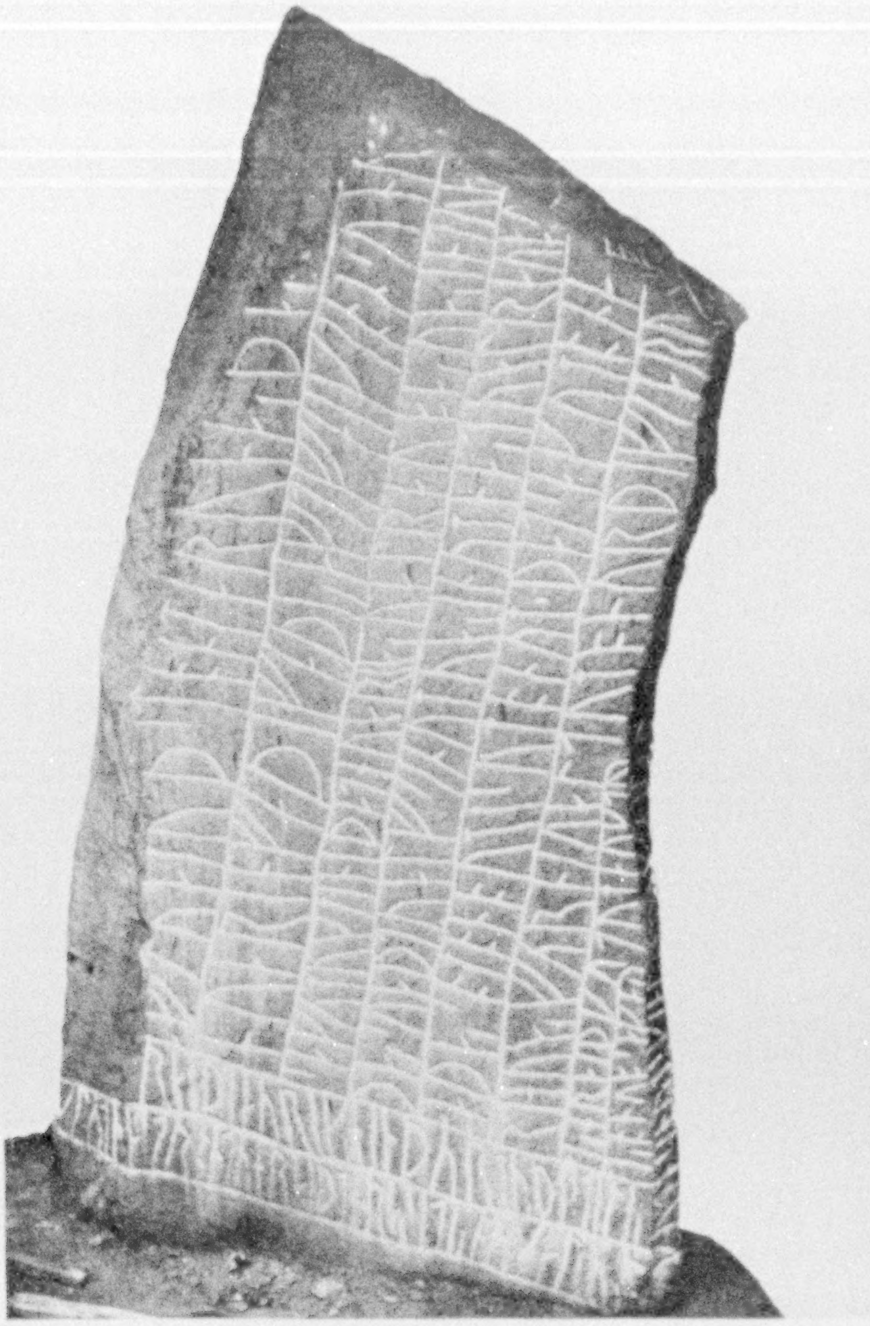
THE LAST OF THREE R'S FOR THE TERM

Judged by American standards, the lot of the average Swedish school child is unenviable (see, also, text, page 413). These Dal schoolgirls of Rättvik wear their local dress (see Color Plates).

wealth, black eminences against distant ranges of snowy peaks.

The tempo of life quickens in the far north. The frontiersman catches the rhythm of the whir of wheels in sawmill, the roar of turbines in power plant, the click of steel rails in mountain tunnel.

"Ours are the riches of the future," he exults. "Here are iron-ore fields among the largest in all Europe. Outside of Finland, probably no other European country has such a high per capita forest wealth (ours approximates 1,000 acres per 100 inhabitants). Excluding Norway, what European power is so lavishly blessed by Nature with bounteous reserves of latent white coal? This is Sweden, the Sweden of to-morrow!"



Photograph by G. Heurlin

A "RUNIC RHYME" IN STONE

Sweden has from 2,000 to 3,000 of these inscribed rune stones dating from the Viking period. They were used chiefly as gravestones or other memorials. This one at Rök is 12 feet high.

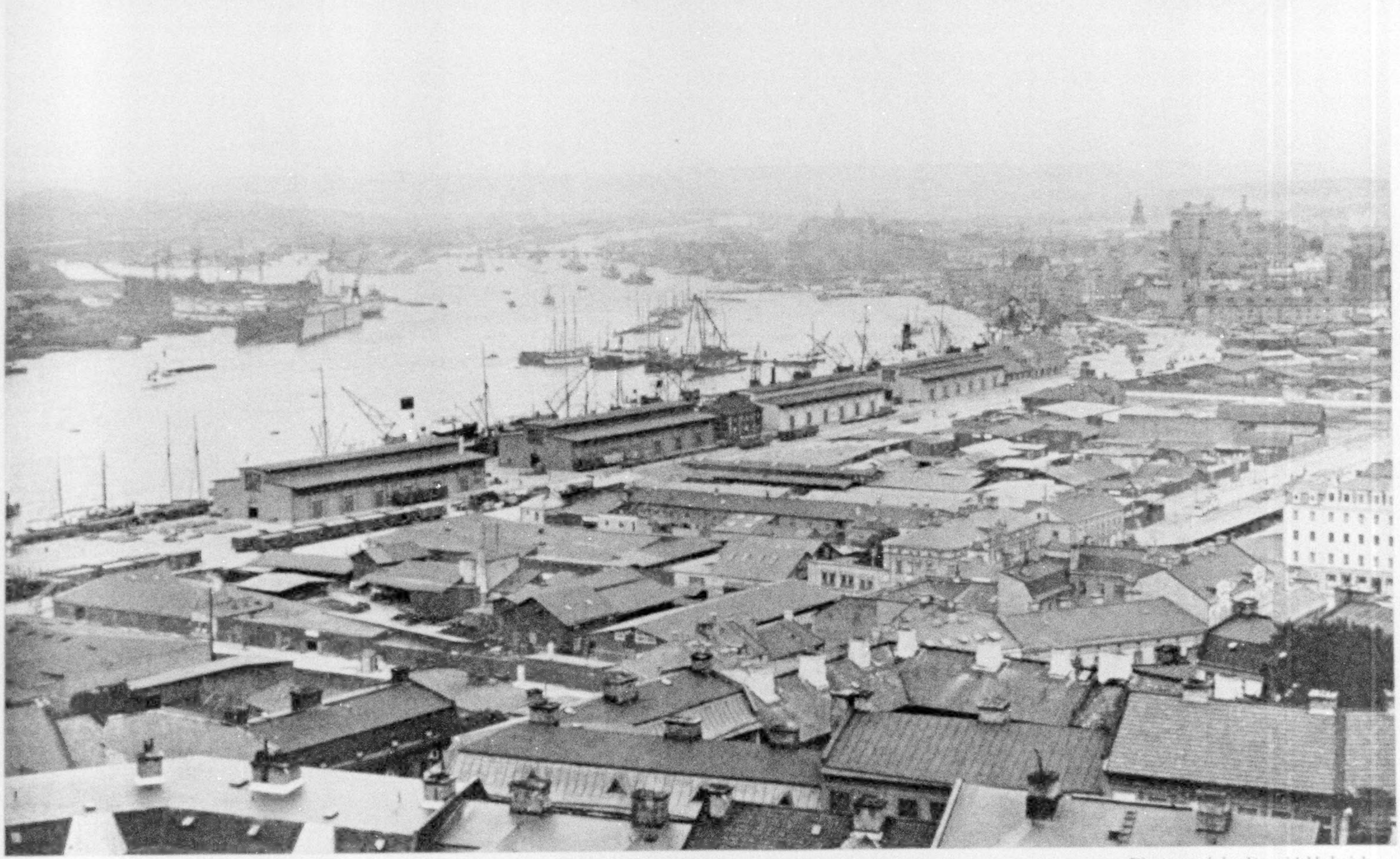
MEDLEY OF DIALECTS, COSTUMES, AND POINTS OF VIEW

They speak with a clear vision—the peasant, the landowner, the city-dweller, the pioneer. The voices reflect unique oddities of dialect, ranging from the melting lusciousness of speech in the south to the airy lightness and willowy grace of the capital, or the sonorous, reverberating singsong of central and northern Sweden. Radio and the telephone have conquered space, but they stand defeated before the oddities that give the Swedish tongue an enduring charm. These dialects are only one of the many variants that defy the leveling and obliterating trends of our day and keep Swedish life picturesque.

For months I traveled through Sweden—by canal, coast steamer, and river barge, by motor car and railway, by air. At all times these variants in the pattern, these different points of view, confronted me, now in dialect, now in the slant of a roof, in the slender height of a church steeple or crouching mass of belltower, in vivid contrast of colors in peasant costumes or curving grace of textile design. It was like a medley of voices. Yet they blended.

BLOND NORDICS PREDOMINATE

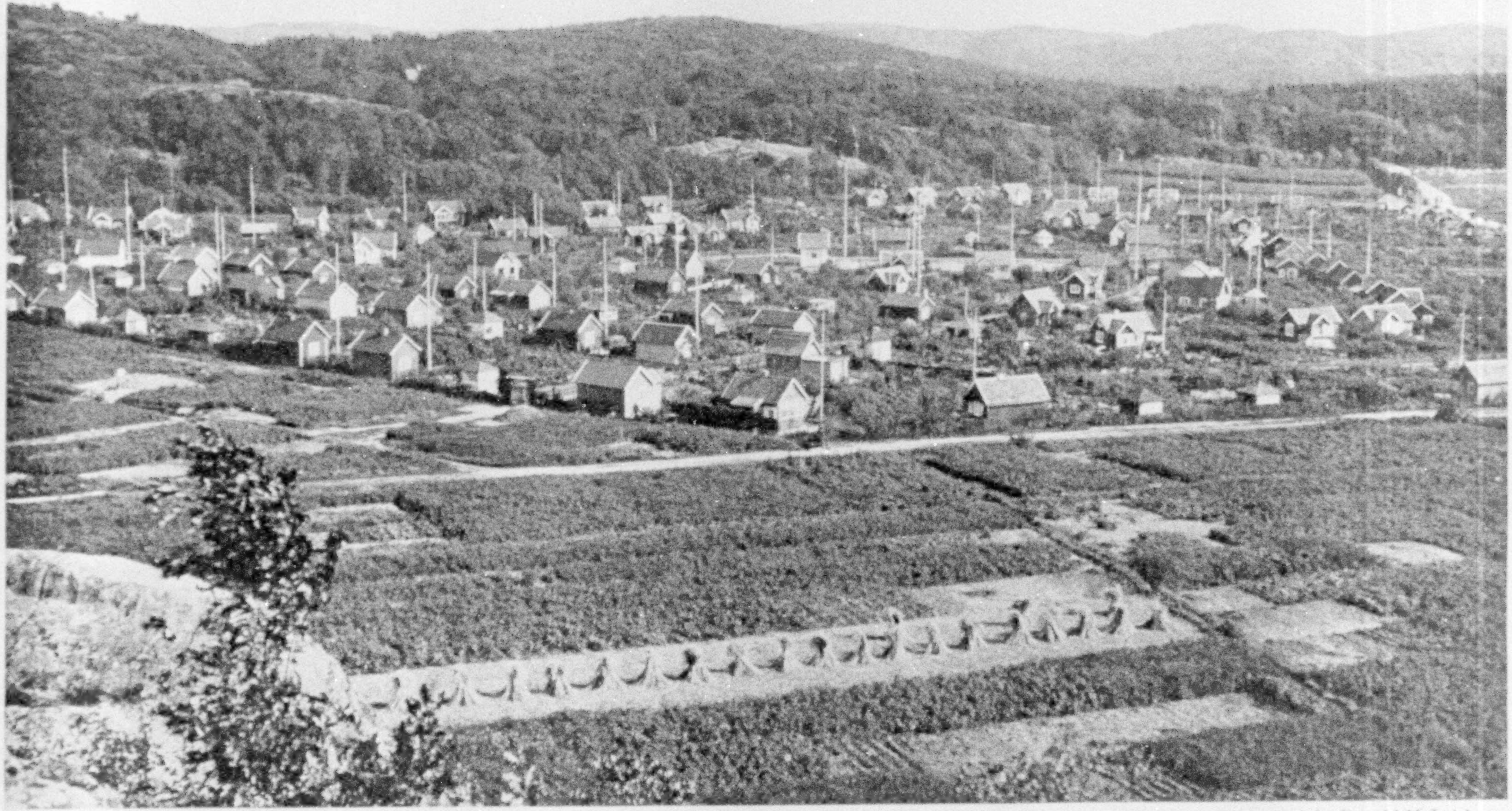
The differences fade in retrospect and the outstanding impression one gets of Sweden to-day is of a closely knit and homogeneous group. In its population an unusually pure Nordic type predominates—tall stature, long face, light complexion, golden hair and blue eyes. The blond coloring gives the streets of



Photograph by Donald McLeish

THROUGH 300-YEAR-OLD GÖTEBORG (GOTHENBURG) SWEDEN TRADES WITH THE WORLD

Owing largely to its magnificent situation near the mouth of the Göta River, Göteborg long since surpassed the capital, Stockholm, in commercial and maritime importance, and its miles of wharves and quays are used by the ships of all nations. This shipping metropolis was founded by the soldier-king, Gustavus Adolphus. As he was scanning the estuary of the Göta River, a small bird chased by an eagle flew to his feet for safety, and the king, considering this a good omen, ordered a city to be built in the valley below. It is the western terminus for the Göta Canal (see pages 454 and 455). In the left center is a large floating dock.



Photograph by Donald McLeish

GÖTEBORG, LIKE STOCKHOLM, HAS ITS GARDEN COLONIES (SEE TEXT, PAGE 410)

In summer the citizens spend Sundays and their spare time tending their small plots of ground on which are grown flowers, fruit, and vegetables. On each section is erected a miniature bungalow.

Photograph by Gilbert Grosvenor

THE GÖTA CANAL WAS AN ENGINEERING FEAT OF ITS DAY

To avoid Danish customs on shipping through the Sound, the Göta Canal system was planned as far back as 1523, but was not completed until 1832. This 347-mile water highway of lakes, rivers, and canals connects Göteborg on the North Sea (see page 452) with Stockholm on the Baltic and uses 65 locks (see, also, text, page 459).

Stockholm a quality of lightness. In contrast, Paris—I recall the two capitals as I saw them a day apart—seemed somber and dark.

HOW THE SWEDISH TYPE HAS BEEN KEPT PURE

The one exception to the homogeneity of the population is the Lapp. Some seven thousand of them, a race apart, dwell in the arctic wastes of the far north. In some vague past—their racial memory is short—they wandered in from the east, possibly from Mongolia. They have not stopped to carve their names on the eternal hills. They are deaf to the tread of the centuries. For them the music of life comes only through the singing of the wind above their nomad tents of bark and through the velvety tramp of fleet, vagrant reindeer hoof (see page 471).

As protected wards of the Swedish State, members of this alien race roam securely over the tundras and snow-capped fjelds of the north.

For more than a century Sweden has

LIKE A BLUE RIBBON, THE GÖTA CANAL TWISTS THROUGH RURAL CENTRAL SWEDEN

Past sylvan banks and forest glades, past ruined castles and towns of mellowed charm, modern passenger steamers ply for two and a half days through a countryside of rare beauty.

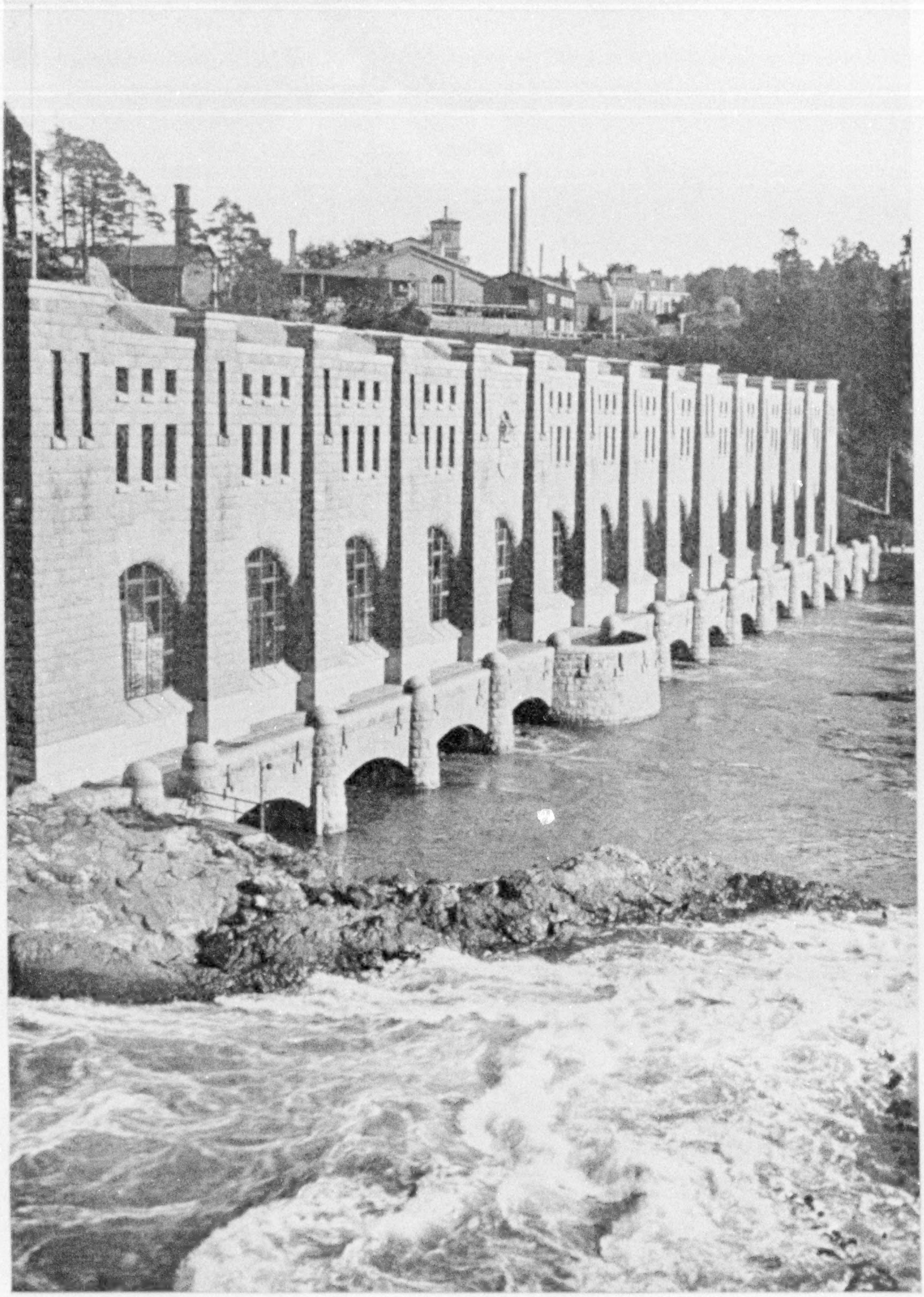
not been embroiled in war. At no time in its history has a conquering foe invaded its territory and left the customary aftermath of mixture of blood. During the past four years Sweden has entered more actively upon its humanitarian purpose of trying to outlaw war altogether. It has signed antiwar treaties or arbitration pacts with nearly a dozen of its European neighbors. Between the two powers concerned, runs the new contribution in several of these antiwar treaties, there is to be no declaration of war "even if a point of national honor is concerned."

Sweden has no colonies and so avoids entangling alliances. Its zest for empire and empire-building was worked off in the flush of youth. In the Viking days brave adventurers went west, and traces of their wanderings still exist on the coasts of England and France, Iceland and Greenland; but in many of the lands they touched they left no enduring record of occupancy.

Quite different is the story of the Vikings who set sail from the Swedish mainland for the East. They colonized Russia and amalgamated with the barbaric hordes already living there. According to the chronicles of Nestor the monk, Rurik was invited to come and organize the hordes into an empire, A. D. 862. For seven centuries the dynasty founded by "Rurik the Swede" ruled the Russian Empire.

During this time Sweden itself became one of the political powers of Europe. Its territory encompassed the Baltic Sea and converted it into an inland lake. Gustavus Adolphus, hero of the Reformation, was king of one of the most important States in Europe. By the end of the 17th century Sweden had held Finland and the Baltic provinces of Estonia, Livonia, and Ingermanland, as well as the sections in northern Germany that controlled the mouths of the Weser, Oder, and Elbe.

Sweden's intervention in the Thirty Years' War saved the cause of religious liberty for Europe. Then came the brilliantly tragic reign of Charles XII. With his death in 1718 ended his gallant defense, as he alleged, of Western ideals of statecraft against the threat of Muscovite anarchy. Sweden had lost its Baltic possessions. Its prestige as a world power



Photograph by Donald McLeish

"WHITE COAL" OF TROLLHÄTTAN FEEDS SWEDISH INDUSTRY

The famous waterfalls on the Göta River, near Göteborg, have a total length of about 5,000 feet, with a height of 109 feet. More than half of their 270,000 horsepower is now utilized by large industrial establishments and towns. This is the new powerhouse at the falls.

diminished. The energy expended on extending empire has since been directed toward the more peaceful pursuits of developing internal resources.

Sweden has no immigration problem, about 99 per cent of its six millions being native-born.

Not immigration, but emigration, once threatened the national welfare. Before American immigration quotas were known, nearly a fifth of Sweden's population was represented in the United States.

The six-million figure invariably calls to my mind another six-million unit—New York City. Topographically as well, there is similarity between the long and narrow contour of Manhattan Island, symbol of the greater city, and Sweden, the eastern half of the Scandinavian Peninsula.

For decades New York City, with its numerous foreign colonies, has been the melting-pot of many nations. Sweden is a brilliant example of the extreme antithesis—the crucible for one. The resulting expression of life is intensified. Pronounced national characteristics emerge.

WEATHER ALONE TENDS TO MAKE THE SWEDE MELANCHOLY

Love of country dominates the Swedish people. Their songs reveal a passionate love for the beauty of the land which has been an unending source of inspiration to Swedish poets.

The Swede's reputation for melancholy I attribute wholely to his susceptibility to the vagaries of the weather. He is gloomy at the very thought of autumn, harbinger of the dark winter months. All the russet gorgeousness of September and October is wasted on him. He is quick to lament the briefness of the season of light. Remind him of some event in the past and he is likely to say reflectively, "Oh, yes, that was the year the summer fell on a Tuesday."

In that respect he is the arch pessimist. Stockholm, to be sure, is in very nearly the same latitude as the southern tip of Greenland. This means that approximately two-thirds of the country lies in latitudes generally considered unfavorable to habitation and growth. But the climate of the Scandinavian Peninsula, with its jagged coast line sweeping down majestically from polar regions into the North and Baltic seas, is tempered by the warm Atlantic drift, which follows the western coast of Norway and dips also into the Skagerrack.

SUMMER COMES WITH A RUSH

There is a joyous glamour about the way spring and summer come with a rush. Almost overnight, in the south, I saw the beech forests turn into low ranges of jade.

Against that background of airy lightness tower old fortresses hoary with traditions. Glimmingehus, near the east coast, survives as a reminder of the knightly days of the age of the Renaissance. At Kalmar Castle, Queen Margaret effected the union of the three Scandinavian powers—Norway, Denmark, and Sweden—in 1397 (see page 444). Hälsingborg, on the west coast, is dominated by Kärnan, and from its terraced heights one can look across the Sound to the Danish coast, where rises the companion fortress identified with Hamlet, Kronborg Castle, at Elsinore (see, also, page 466).*

Central Sweden is the great lake district and the region of thousands of islands. I cannot dismiss lightly the loveliness of that island-dotted world.

I recall a journey by air from Stockholm to Helsingfors (Helsinki), Finland, and back.† Out of the wooded Stockholm skerries rose little clusters of houses, like toy villages. They were all neatly proportioned, but from our perspective they lost their dimension of height. It is unreal and fairylike, that two-dimensional world of land one sees from the sky.

Farther out toward the Baltic the vegetation straggled to hold its own against the clawing, hungry sea. Near the shores the clear, still waterways looked like shallow pools. Actually we were looking down into 20-foot depths at least. Where objects on land, as seen from the air, lose their dimension of height, still water gains a dimension of depth. The higher we rose, the nearer we seemed to those cool, green mossy bottoms of the sea.

After my return to Sweden I asked a

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* See, also, "Denmark and the Danes," by Maurice Francis Egan, Litt. D., in the NATIONAL GEOGRAPHIC MAGAZINE for August, 1922.

† See, also, "Helsingfors, a Contrast in Light and Shade," by Frank P. S. Glassey, in the NATIONAL GEOGRAPHIC MAGAZINE for May, 1925.

Photograph by Borg Mesch

PORJUS FALLS, A WORLD GIANT OF HYDROELECTRIC POWER

To control the mad rush of water on the Lule River, and especially to resist the pressure of the masses of ice which bear down against it in winter, required a dam 4,115 feet long and 42 feet high. It was built in a few months, while a continual glare of electric light dispelled the darkness of the winter days over the dam and the red-frame houses in the mushroom town. Electrically heated rods running through the backwater of the dam fought the bitter cold and ice and heated the workmen's shelters. As a protection against cold the mountain was blasted to a depth of 165 feet below ground level, where the machine room was installed (page 469).

royal cartographer how many islands we had seen along the Swedish mainland. Gravely he answered, "Men have been seen trying to count the stars in the firmament above us, but no one has yet attempted to count the islands and islets of the Stockholm skerries!"

WHERE BEOWULF FOUGHT THE MONSTER

The islands the transatlantic visitor sees first are those that encircle the harbor of Göteborg (Gothenburg), chief shipping center and commercial port of the country; for the usual approach to Sweden is by the "lonely passage" that rounds the bleak northern tip of Scotland and then threads down among the islands in the Kattegat. Those granite isles are barren. "Only a beautiful woman dares to wear gray," once said a French connoisseur. Only a country as beautiful as Sweden dares to present that mauve front to the Western World.

This is historic ground. To these parts, or upper Bohuslän (the lower west coast was then Danish territory), came Beowulf, son of the high-born Lord Ecgtheow. The Anglo-Saxon epic throws light on some of the earliest known history of Sweden. Here Beowulf made his bold and successful attack on Grendel, the monster, and later was received in the castle of King Hrothgar with feasting and revelry.

Göteborg and Stockholm are linked by a road of water, the Göta Canal. This connects the North and Baltic seas and the large inland lakes, Vänern—the largest lake in Europe excluding Ladoga and Onega, in Finland and Russia—and Vättern and Mälaren. The series of locks that provide for the varying levels in the route—the highest point is 308 feet above the Baltic—were an engineering triumph when constructed nearly a century ago (see illustrations, pages 454 and 455).

North of this belt of water is another "lake district," including the Fryken lakes of Värmland, Lake Siljan in Dalecarlia, and Dellen in Hälsingland, along the eastern coast. These are the Swedish Windermeres, Comos, Lemans, and Lucernes, and love for their beauty of turquoise waters and birch-lined shores runs like a golden thread through the poetry and folklore of the people (see, also, Color Plate XI).

WINTER BLANKETS SWEDEN IN COLD AND DARKNESS

Farther north come the extremes of summer and winter. Where the Arctic Circle cuts through the fjelds along the Norwegian boundary and runs east toward the Torne Valley extending into Finland, the sun is visible for 24 hours of the day for seven weeks in June and July. From any of the accessible mountain peaks—Kebnekaise is the highest, and only the most enthusiastic Alp climbers scale its 7,000 feet—the midnight sun is a breathtaking spectacle of magnificence. Like a glowing ball of unquenchable fire, it glides slowly along the brim of the world, dipping slightly and then beginning to mount again.

I recall those summer nights that bring tourist pilgrims from afar to climb Nuolja Peak, near Abisko, or Luossavaara, one of the two massive mountains of iron ore at Kiruna. They watch the playing lights and vivid prisms of colors, ranging from the deep violet of shadows formed by snow-capped ranges to the fiery vermilion of a wind-swept northern sky (page 465).

I recall, too, the lonely hush of Great Lule River. Near its headwaters it is fed by rushing mountain torrents, reverberating organ tones in the primeval wilderness of the north. Its series of rapids and waterfalls supply power for the electric plant at Porjus. I heard engineers discussing it in terms of amperes and voltage and kilowatt hours. But it unfolded for me as a majestic river of light (see, also, page 458).

We came down by motorboat. It was after midnight, but it was day. No darkness had fallen on the Lule. In the shimmering light the snow-capped peaks seemed to recede and grow cold and austere. Mists descended to drape themselves like silvery veils over the snowy rim of our lofty horizon. One lonely bird skimmed the ranges. It was the hour for sleep, but the need for it had been conquered by the abundant reserves of electrifying, invigorating light. Such is the summer in the shining north!

But winter is blanketed by the dull torpor of clock-defying darkness. Now and then the aurora borealis plays. The very light then seems to have wrested its release from the icy grip of winter. Rays of gold leap out from the sky and billows of flaming orange roll across the wilderness of peaks hooded in white and over the sparse and widely scattered outposts of civilization that have sprung up in these regions during the past quarter of a century.

THE "LOST CITY" OF VISBY

From those far outposts it is but a day-and-night journey by train down to Stockholm, and from there a night's voyage to one of the oldest cities of Western Europe, the "lost city" of Visby, on the island of Gottland, in the Baltic.

To-day Visby is a little town of 10,000 souls. It was once great and wealthy, the stronghold of Viking and post-Viking trade. From slight fragments antiquarians have pieced together its history through the centuries (see pages 475, 476, 477).

The soil of the island has yielded a quarter of a million coins from Byzantium and other realms of the Orient, revealing that here was an important trade center between West and East. Later the Hanseatic merchants made themselves secure within the fortifying city wall. Two miles of its ruins have survived the ravages of

Photograph by G. Heurlin

UPHOLDERS OF AN ANCIENT CRAFT

Long before the days of the Crusades the Swedes made iron. Even the Sagas tell of dwarf smiths who forged mighty swords and made their craft a synonym for excellence. For a while during the 18th century, Sweden supplied four-fifths of the world's iron, most of the ore coming from veins in the central part of the kingdom. To-day she makes the greater part of Europe's highest grade iron. The end is not yet in sight. In Lapland, above the Arctic Circle, additional huge deposits of high-grade ore are being developed.

time, and 37 towers, with intervening bartizans and corbels, still rise toward the sky.

Among those ruins I see a door open into a past more ancient than they. Like the whitecaps on the North and Baltic seas fly the Viking barks. In Iceland, literary center,* the fire of genius glows in the Eddas and the strange sagas about the men who are roving the seas. At Visby gold from far places glitters in the merchants' coffers like the sands of Samarkand.

The Baltic becomes a network of trading routes, second only to the Mediterranean in commercial importance. The routes take in Lübeck, to the south, with its busy market square, and the famous "steelyard" of London. Great Novgorod, in Russia, is a flourishing commercial center. And Visby grows from an obscure trading station into a fabulously wealthy city.

Forth go the Viking fleets, with their cargoes of pitch, tar, limestone, salt, and iron ore. Some stop at Novgorod and return with the prized honey (for the mead-drinking gods?) and skins and furs from the northern Russian forests. From Novgorod and not from Paris comes the newest note in fashions.

By the middle of the 11th century Canon Adam, of Bremen, hints that Sweden is giving more thought to a cargo of martens than to his evangelical gospel. True, perhaps. But I can see Sweden's side of the case. In the north the winter temperatures often fall below —22° F. For comfort and warmth, which will you have: Russian sable or the doctrine of original sin?

Many a Viking bark made the long journey from Novgorod to Constantinople and back. On the lower Dnieper, a favorite route, were six perilous rapids;

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* See, also, "A Walking Tour Across Iceland," by Isobel Wylie Hutchison, and "The Island of the Sagas," by Earl Hanson, in the NATIONAL GEOGRAPHIC MAGAZINE for April, 1928.

their Swedish names still commemorate the coming and going of these seaworthy, determined pioneers of trade.

In Constantinople the northern cargoes were exchanged for silks, spices, brocades of shimmering softness, ornaments of silver and gold. Now and then there was a run on Mediterranean wines.

CHURCH BUILDINGS HINT OF VISBY'S MEDIEVAL SPLENDOR

Visby began to rival contemporary London in size and numbers. It minted its own coinage. The mariners of the north obeyed the Visby sea laws. In the time that it was the stronghold of the powerful Hanseatic League, the merchants grew wealthy. Their houses, runs the legend, had window frames of silver. The women spun with distaffs of gold.

Great zest went into the building of cathedrals. The island today has 90 churches more than 600 years old. The 11 cathedrals that stand as ruins within the city walls give hints of medieval splendor. Their graceful arches throw violet shadows on the grass (see, also, Color Plate III, and illustration, page 475).

Let us pass lightly over tragedy; for it is tragic, that story of Visby's departing greatness. First came civil strife. The country merchants complained that those within the city walls were usurping all the trade. King Magnus Ladulås intervened in 1288 and made Gottland a province of Sweden. In time the Hansa merchants removed the trading privileges with Novgorod and other trading rights from Visby to Lübeck. That was the blow direct.

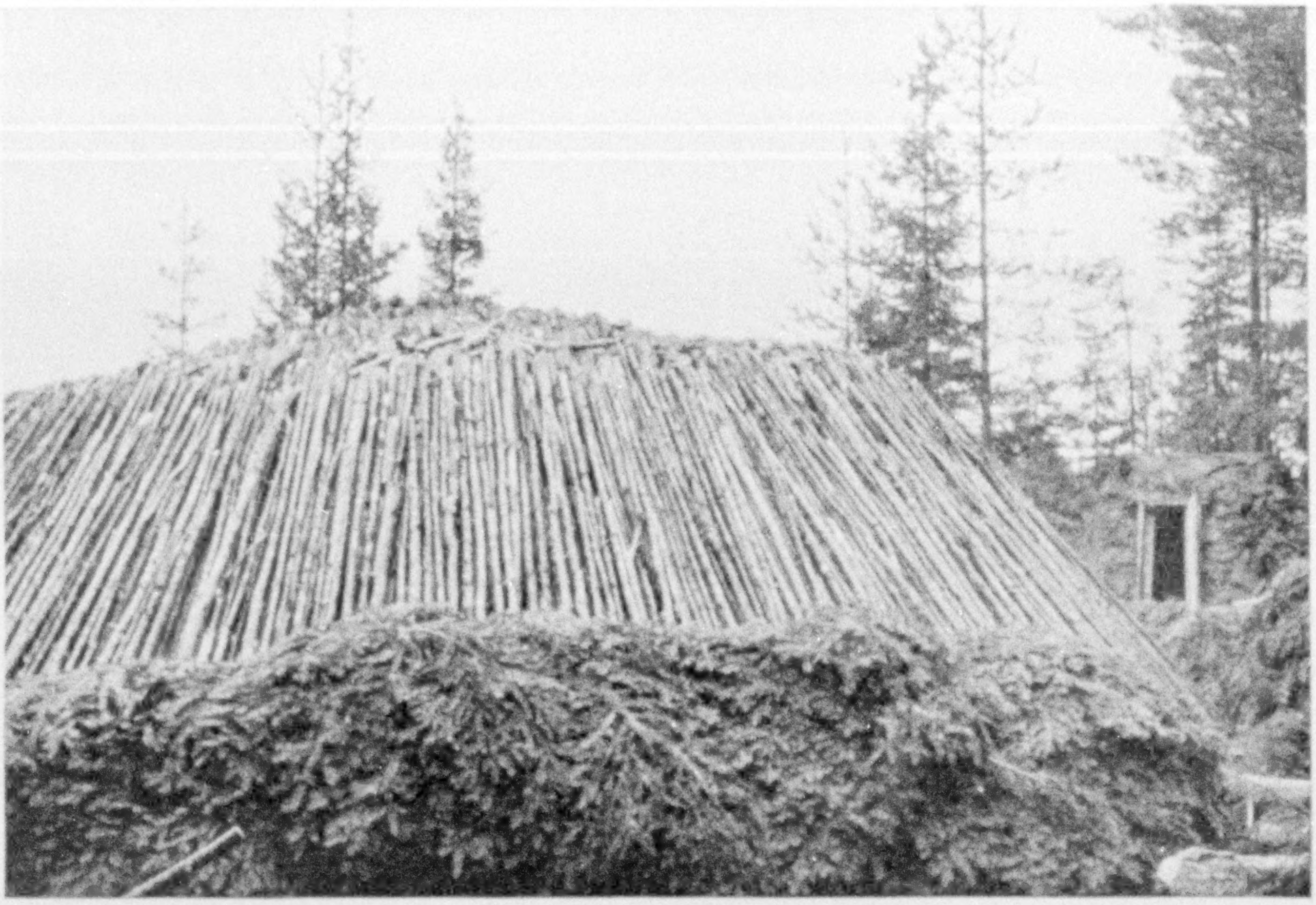
There was misery during the days of the Black Plague, which swept all of Europe. In 1361 King Valdemar Atterdag, of Denmark, laid siege to Visby and carried off spoils of war (see page 477). Soon the "Victuals Brothers" turned the once fair city into a veritable pirates' nest. The Reformation gave a final sanction to the pillaging of cathedrals and convents.

New forces were reshaping the world of Europe. In Russia the Tatar hordes

Photograph by G. Heurlin

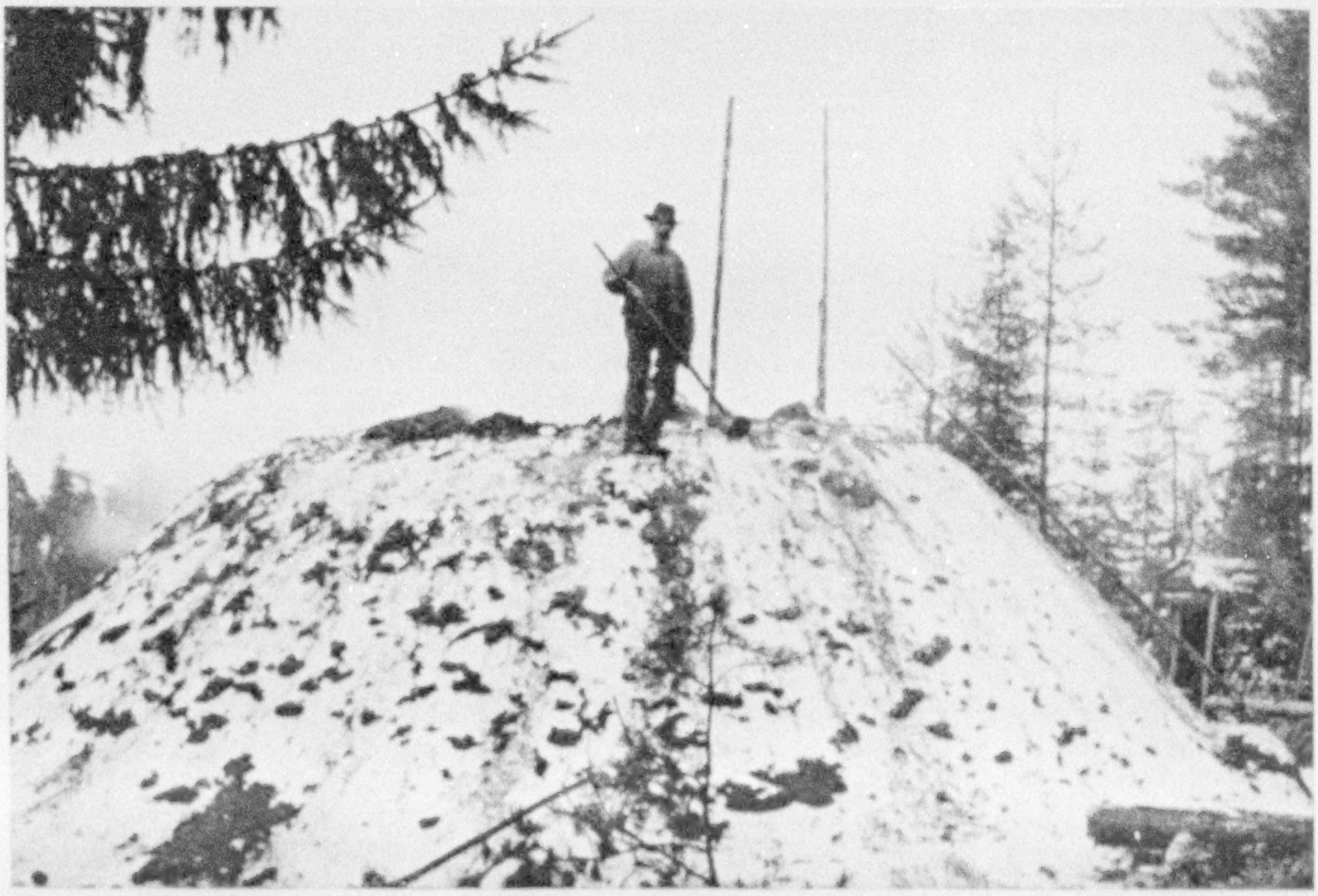
THE OLDEST COPPER MINE IN SWEDEN

For more than 700 years Falun's mine has been in operation. The mine galleries are more than 12 miles in length and the deepest section is more than 1,150 feet below the surface. Since the middle of the 17th century it has produced half a million tons of copper, a ton of gold, and fifteen tons of silver. At present the output is small.



SWEDEN HAS MADE CHARCOAL IN THIS WAY FOR HUNDREDS OF YEARS

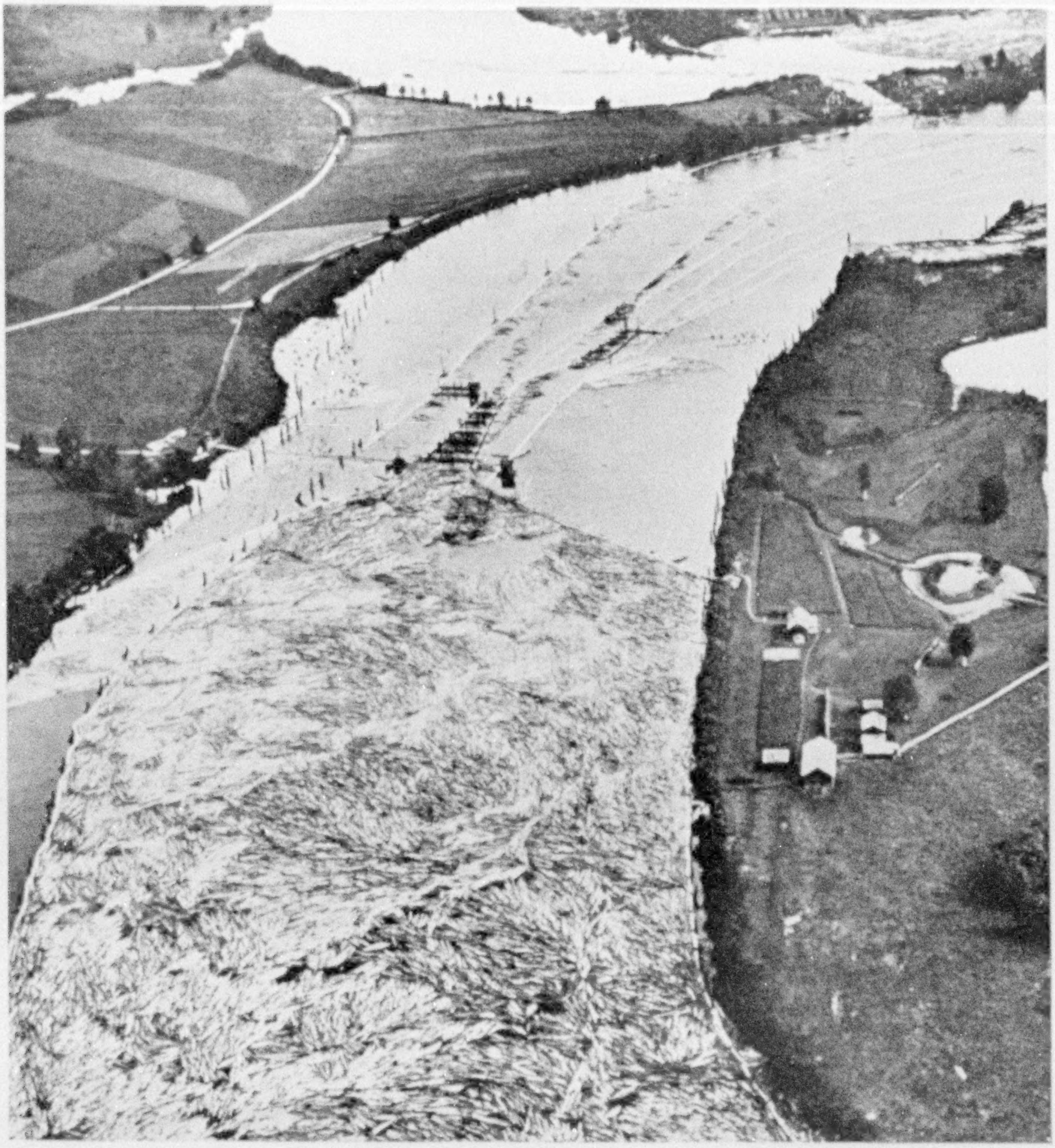
In the process of burning in stacks, the billets of wood are piled either vertically or horizontally. Much of the charring is done in heaps in the forests, for in winter the product can easily be transported on sledges, without the necessity of expensive roads.



Photographs by Verna Edgren

TO CHARCOAL SWEDEN OWES ITS PIG-IRON INDUSTRY

After the wood is stacked in piles (see above), it is covered with turf and burned for three weeks. Most of the charcoal is used in the blast furnaces of the iron industry (see page 460).



Photograph by Kadel and Herbert

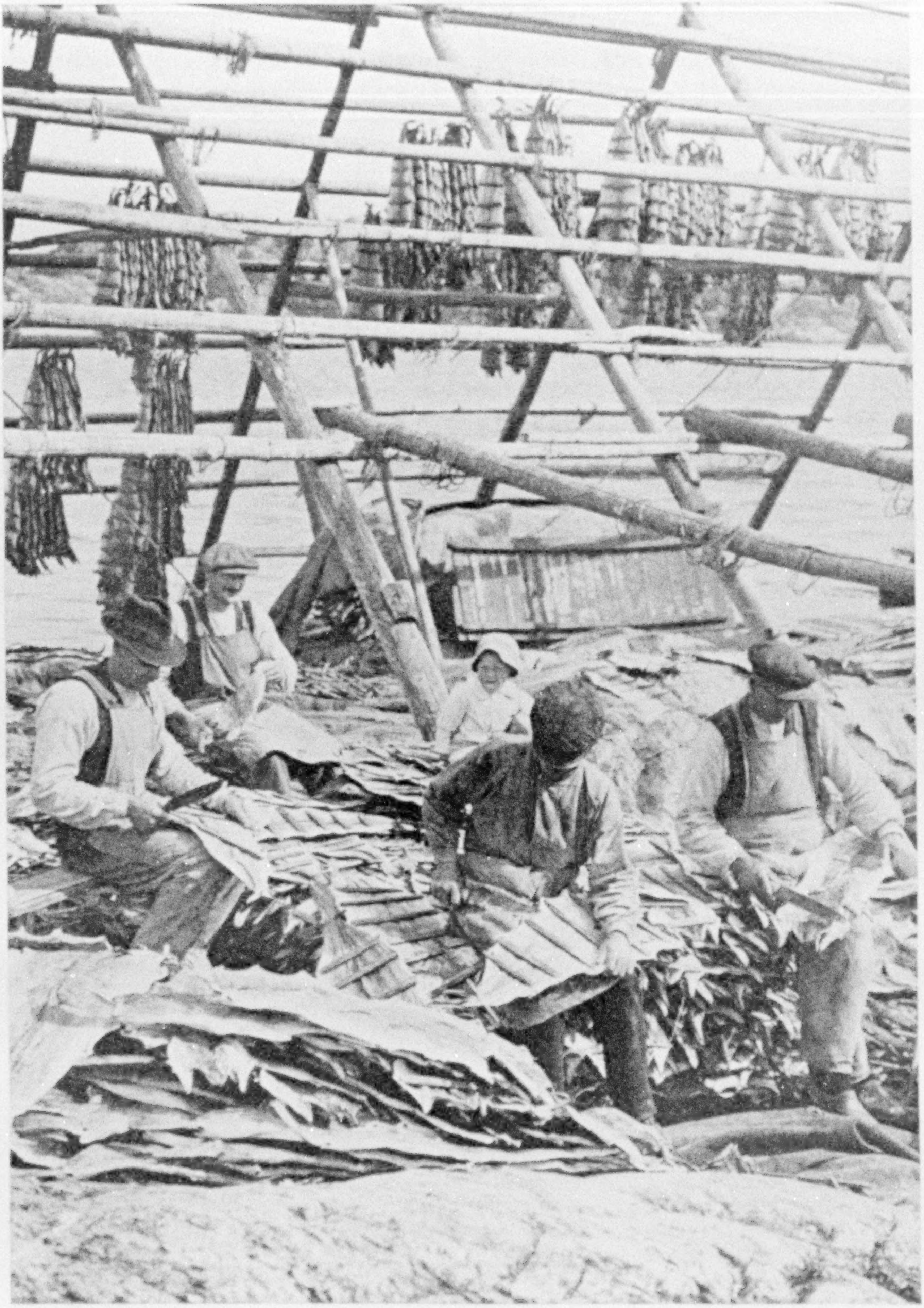
SWEDEN'S FORESTS HELP TO FEED THE TIMBER MAW OF THE WORLD

At this point on the Dal River, in northern Sweden, logs are counted and sorted before being transported to sawmills whence, as lumber, they go forth to all parts of the world. Three expert tally clerks estimated the number in this pile at 9,875,163. The dam (center) tapers to a small runway, and lines resembling breakwaters diverge from it. The checking counters stand at the runway, where the logs are sorted and directed to the several flumes leading to that section of the sawmill which is to handle them. Sweden has more than 17,000 miles of timber-floating channels, which end at the mouths of the great rivers in the Gulf of Bothnia. In these estuaries the timber and wood-pulp factories find their natural home.

had begun to block the regular highways of commerce. The Crusades had opened up new trade routes overland. England began to send its cargoes to Russia by way of the White Sea. The water route to India was discovered. America, far to the west, offered glamorous promise. The Middle Ages had done their work and were drawing to a close. Visby sank into oblivion, sank back into the purple heather and yellow sand.

A PEACEFUL CITY OF ROSES

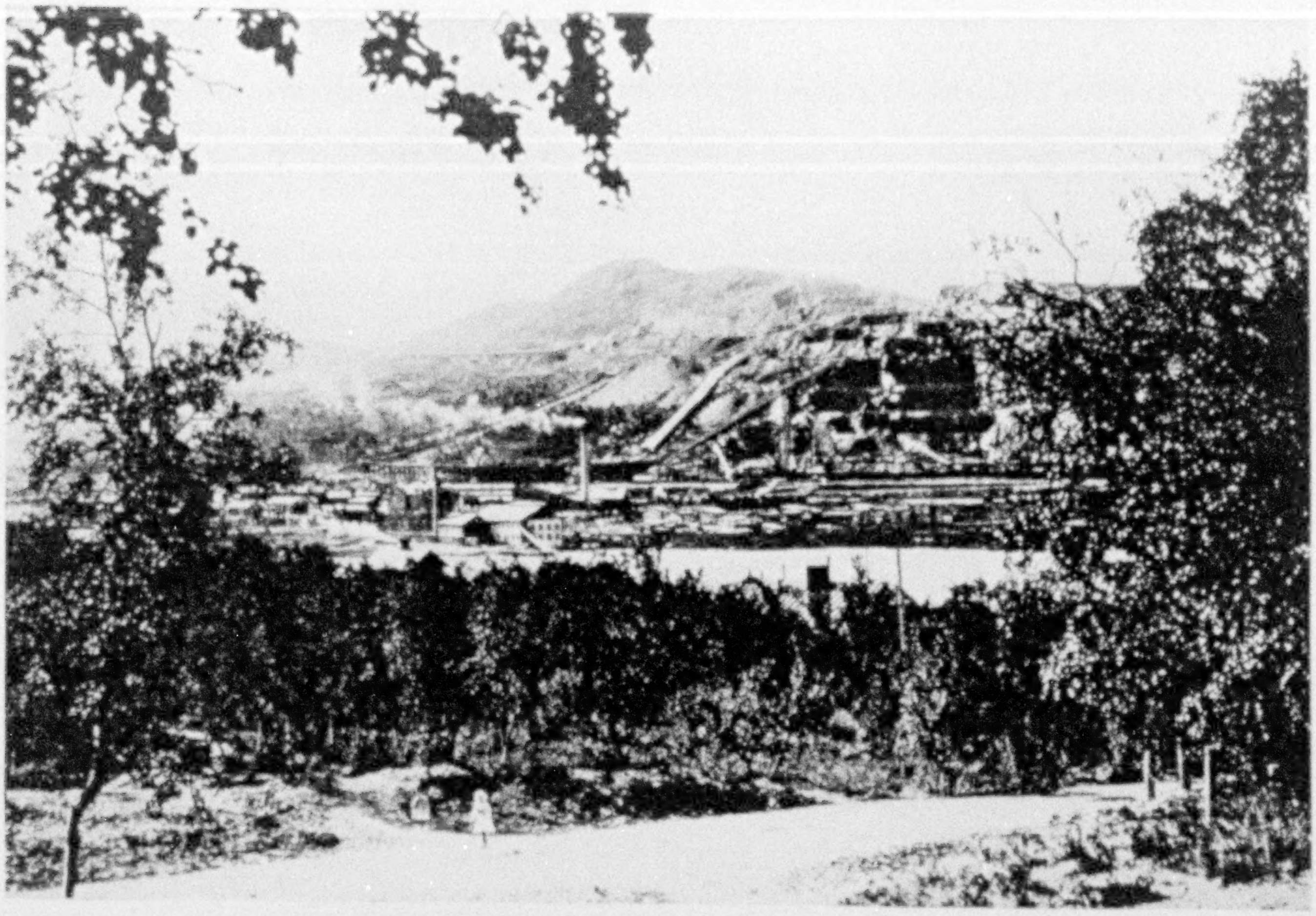
To-day it is an idyl resting peacefully in the tideless Baltic. Gone are the bazaars and traders' stalls along the strand. Gone,



Photograph by Donald McLeish

REMOVING THE BATTENS FROM DRIED "KLIPPFISK"

The chief industry of the hardy folk who live among the numerous islands off the southwest coast is cod fishing. Much of the fish intended for export is split open, saturated in brine, stretched out with wooden battens, then dried on lofty frameworks exposed to sun and air.



Photograph by G. Heurlin

KIRUNA IS SITUATED NEAR THE LARGEST IRON-ORE DEPOSITS IN SWEDEN

A little more than twenty years ago the site of busy Kiruna, on the shores of Luossajarvi Lake, and at the foot of the two iron giants, Kirunavaara and Luossavaara, a hundred miles north of the Arctic Circle, was a wilderness through which the Lapps roamed undisturbed.

too, the Russian furriers with their plaited beards, pointed caps, and long green coats, and their cargoes of blue fox and marten and squirrel from old Novgorod.

Trim little homes, painted yellow or green, now line the narrow, cobbled streets, with low red or black roofs huddling in the very shadow of the city wall. Roses thrive as nowhere else; ivy trails up the trunks of the mountain ash and along the time-defying arches of the sightless, roofless cathedral ruins. It is they, together with the old city wall, that have made the skyline of Visby famous. Every summer travelers come from afar and are on deck at daybreak to see it, as the steamer approaches from the west.

FEW EXTREMES OF WEALTH AND POVERTY IN SWEDEN

Characteristically idealistic, the Swede dwells first upon these and other charms of his homeland and only afterward surveys its resources and material wealth.

With a few outstanding exceptions, there are no striking extremes of wealth and poverty. There are no slums in Jönköping, for instance, though it is the home of the world-famous safety match, one of the most important manufactures of the country. Eskilstuna steel, an equally familiar trade-mark, has not produced a Swedish Pittsburgh of vicious volumes of smoke.

The miners at Kiruna, north of the Arctic Circle, live in a model community of neat, modern houses; and Falun, center of the Bergslagen mining interests, suggests neither luxury nor squalor, although one corporation, generally said to be the oldest in the world, has held continuous possession since 1284 of the great mine, Stora Kopparberget, with its vast underground pit (see, also, illustration, p. 461).

The ordinary day laborer puts something of the spirit of the craftsman into his work. During my six months' stay in the country I never learned from any official the Swedish equivalent for the word efficiency. It belongs in the general pattern of Swedish life, but it is taken

Photograph from Ernest L. Harris

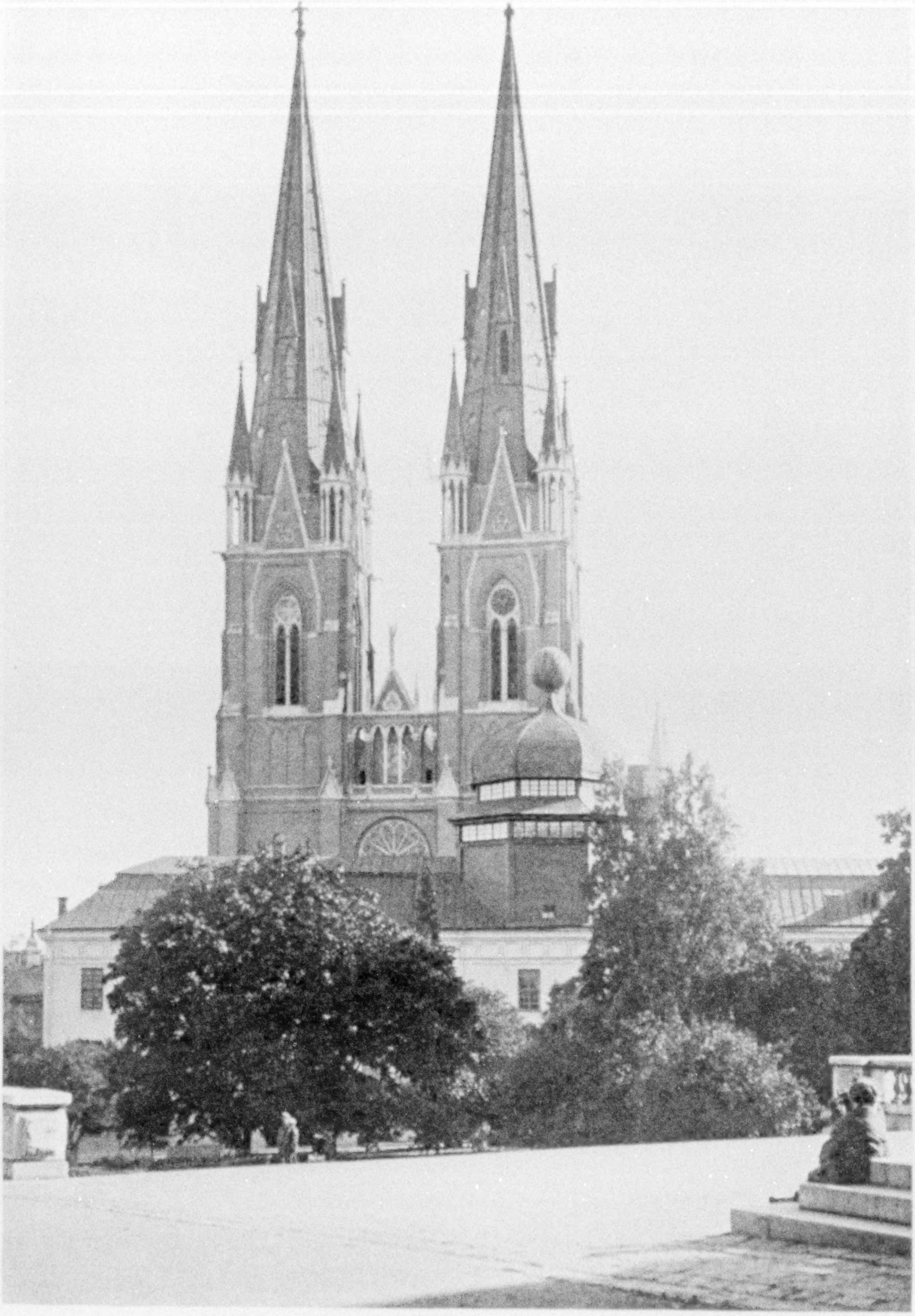
BEFORE COLUMBUS SAILED, SWEDEN FOUNDED THIS INSTITUTION OF LEARNING

The University at Uppsala dates from 1477 and is the oldest in the country, as well as the largest, with 3000 students. This is the main building.

Photograph by G. Heurlin

HÄLSINGBORG, THE VIS-À-VIS OF SHAKESPEARE'S ELSINORE

Across the Sound from this Swedish seaport is Danish Helsingör (Elsinore), with Kronborg Castle, on whose battlements, according to popular belief, the ghost walked with Hamlet.



Photograph by Donald McLeish

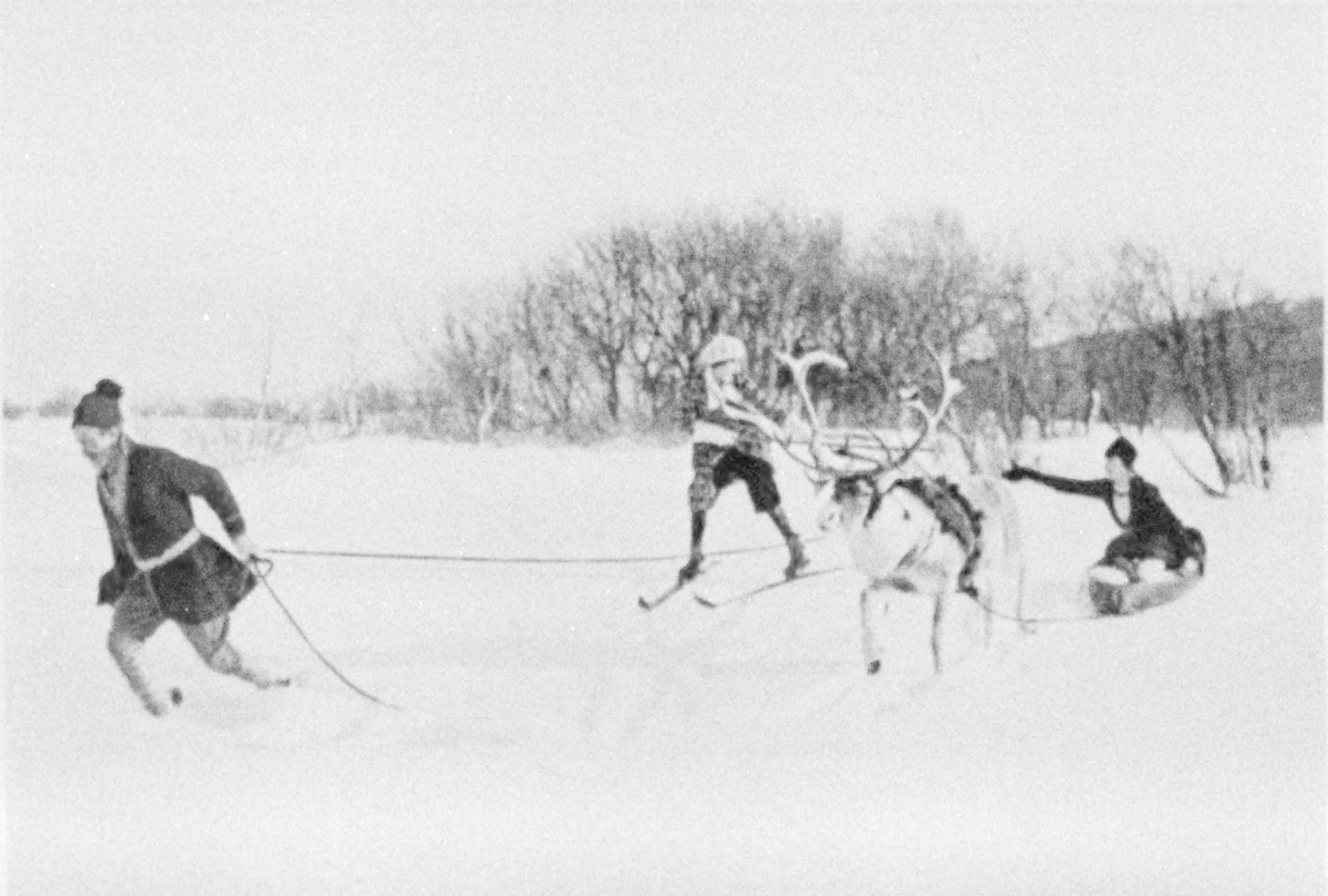
UPPSALA'S CATHEDRAL IS THE LARGEST CHURCH IN SWEDEN

This Gothic structure of the 13th century is 387 feet long, and its spires are of the same height. It is somewhat of a Westminster Abbey, for in it are buried many of the nation's honored dead, including Gustavus Vasa (see page 441), the botanist Linnæus, and Swedenborg, the scientist, theologian, and mystic.

Photograph by Nils Thomasson

SKIING IS SWEDEN'S SPORT OF SPORTS

Wherever there is snow, the Swede takes his skis and hurries off for a day of exhilarating exercise and exciting competition. The Lapps, who are among the finest ski-runners in the world, can cover 160 miles in 24 hours.



Photograph by Bertil Norberg

"JINGLE BELLS"—ÅRE'S VERSION OF THE "ONE-HORSE" OPEN SLEIGH

In the *akja*, a boatlike sled, the Lapp drives behind a reindeer over the snowy wastes of the Swedish north. Many of these nomads live in Jämtland's mountains, and frequently some turn up for the winter sports at Åre, the principal tourist resort of this province.

Photograph by Kadel and Herbert

NO WIND, NO RACE!

On the numerous waterways around Stockholm, skate-sailing has developed into a popular winter sport. When the ice is smooth and the wind is high, as many as 50 contestants race at astonishing speeds—on one occasion almost 58 miles an hour. The knack of beating to windward and sailing with side winds and leading winds makes the sport all the more exciting. With skate-sail and long-distance skates one can go anywhere over the winding, ice-bound fairways of the archipelago upon which the capital is built.

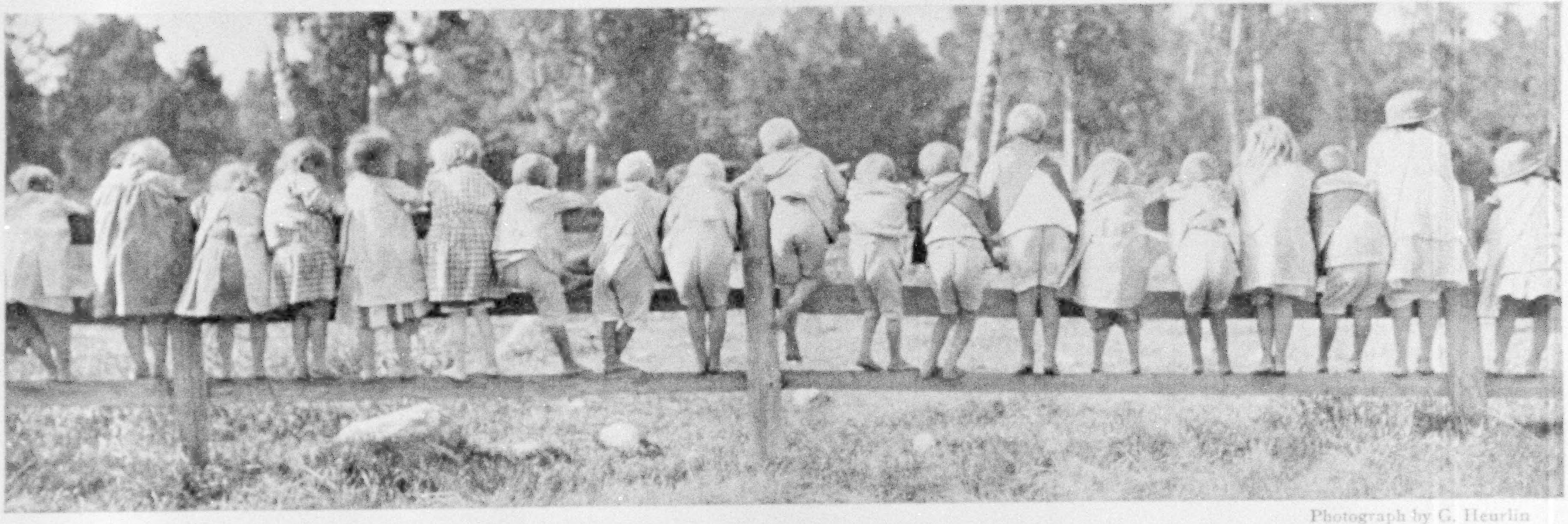
for granted. On the other hand, I picked up stray bits of folklore from wharves and quays as I waited for steamers, and from country lanes and obscure city streets; yet I never encountered a beggar.

"IN THE WINK OF AN EYE!" ANSWERS CENTRAL

The ordinary comforts of life are within the reach of the majority. With a highly developed telephone system, business and social matters are handled largely over the wire. At the hint of a delay, when a call is made, the Swedish operator answers, not "Just a minute," but "In the wink of an eye!" and she means literally and expeditiously just that (see page 446).

A guest in a hotel discovers that he has no telephone bill for local calls. If he gets Stockholm, say, from Göteborg, a distance of 300 miles, his chagrin at being cut off without warning at the end of the unequivocal allotted three minutes is paralleled only by the pleasanter surprise at finding that the bill is a scant 25 cents. The main railway lines, like the telephone, are state-owned. Private lines supplement rather than rival this service, which includes about a third of the total railway mileage of the country. Sweden has a more extensively developed railway system, in proportion to population, than any other European country. Third class is cheap and clean. Second far outranks the ordinary European second, and first offers luxurious means of travel.

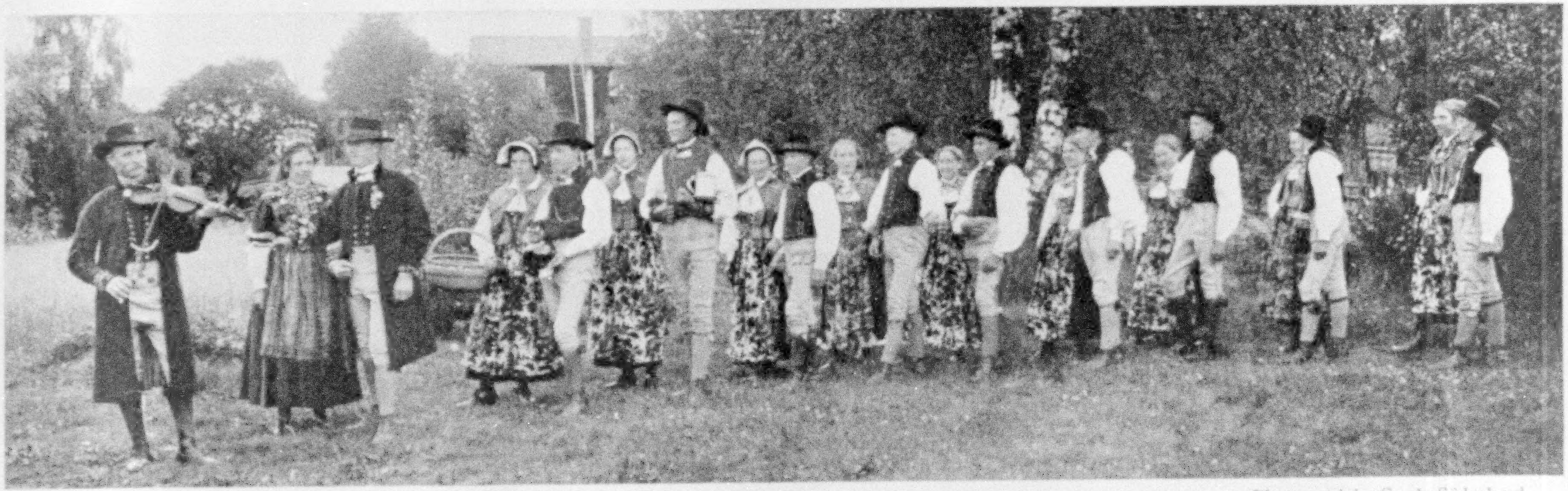
The electrified railway that is farthest north in the world runs from Boden, below the Arctic Circle, to Narvik, Norway's always ice-free port, through which much of Sweden's iron ore is shipped. The electrical current is supplied from Porjus, a modern industrial town that has sprung up in the wilderness of 25 years ago. The machine room at Porjus is sunk into a blasted mountain wall at a depth of 165 feet, a precaution that gives a hint of the low temperatures of the arctic winter.



Photograph by G. Heurlin

THE STEER CAN'T REACH US HERE

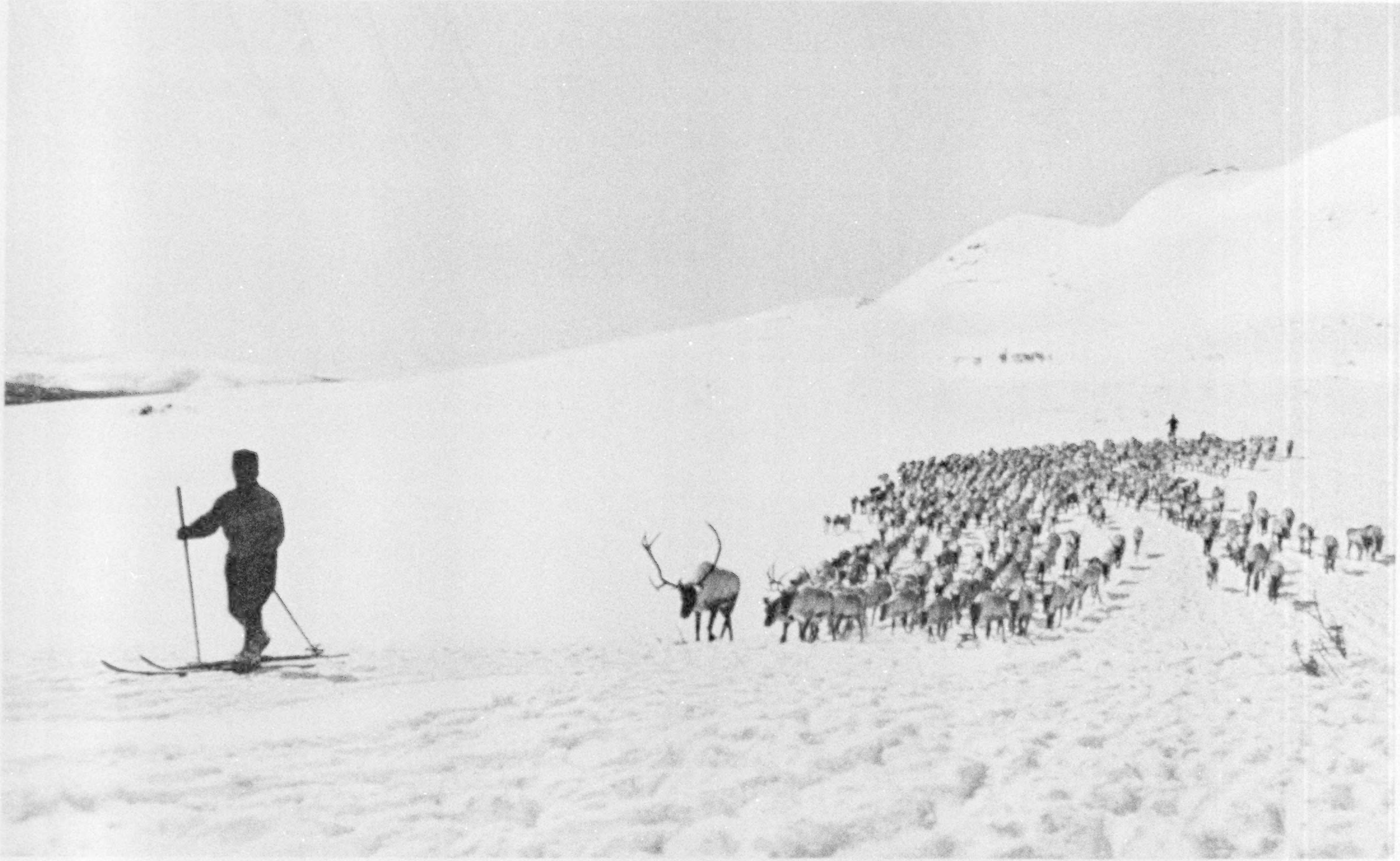
Sweden has four well-known breeds of cattle—the Friesian, imported from the Netherlands a century ago; the Ayrshire, imported from Scotland in 1847; the Red and White Swedish, and the White Polled, or Mountain. The dairy industry flourishes in the fertile, level sections of southern Sweden.



Photograph by Gerda Söderlund

DALS OF FLODA MAKE MERRY AFTER A WEDDING

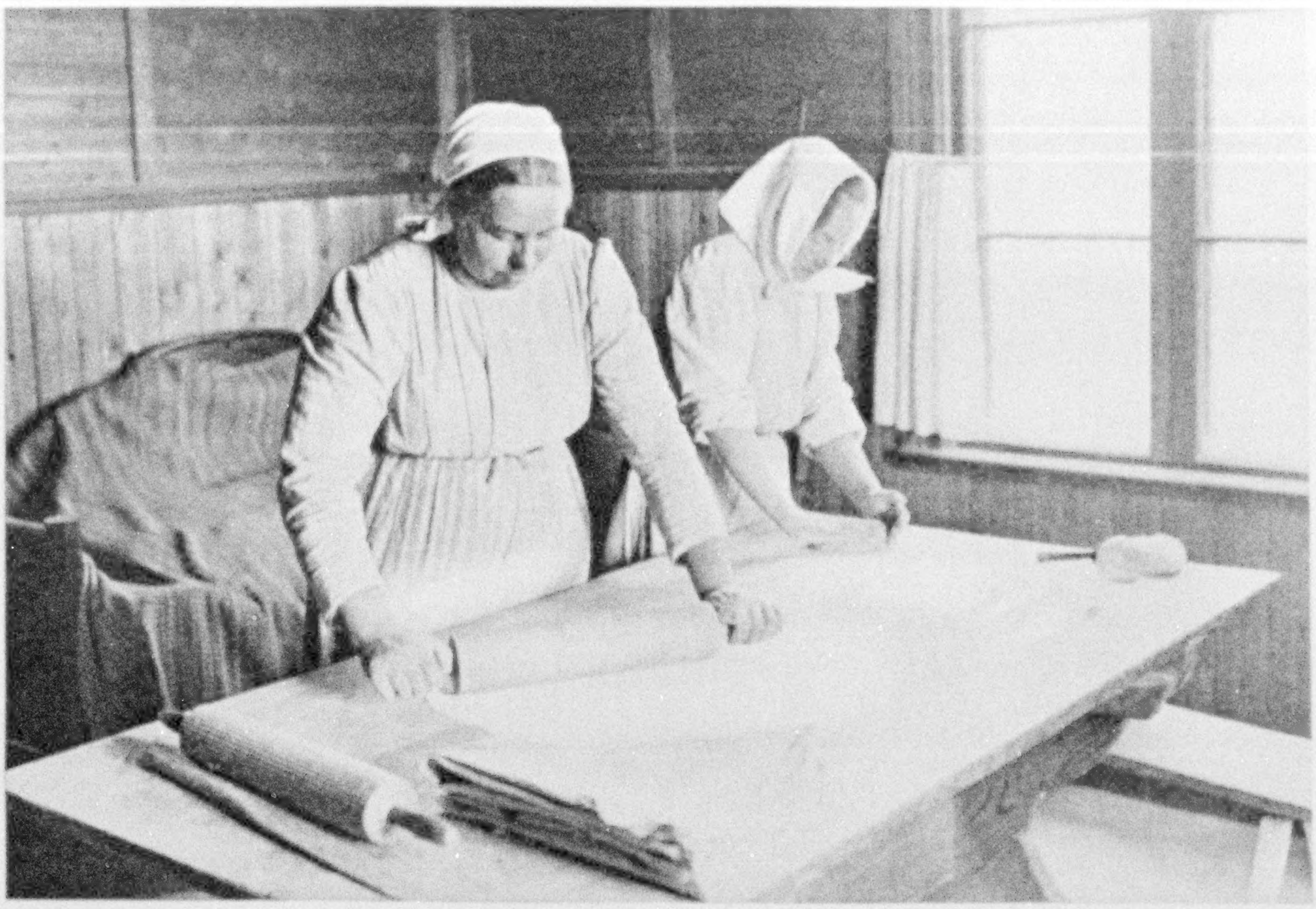
In country districts many people are invited to the ceremony. Family heads contribute the provisions for the feast. Festivities often last for several days.



Photograph by Nils Thomasson

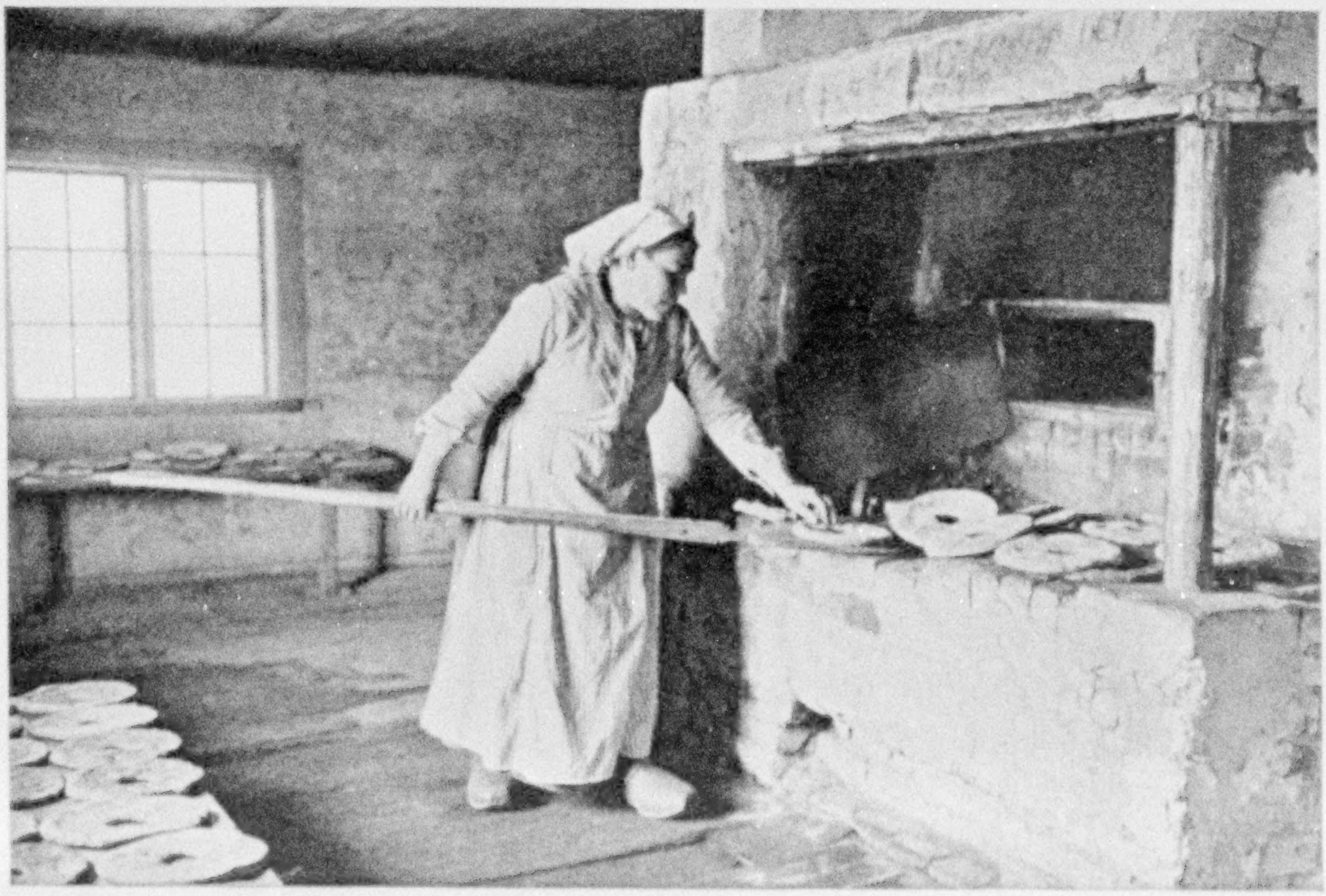
THE REINDEER PROVIDES THE LAPP WITH FOOD, CLOTHING, AND TRANSPORTATION

He eats its smoked flesh, drinks its milk, preserves its blood, and sells its meat for a few luxuries, such as salt and snuff, bread, butter, and coffee. He makes tools out of its bones, warm winter boots and clothing out of its skin. To get about in winter he hitches it to an akja (see page 468). In summer most of the Lapps live high up in the mountains of northern Sweden, where their valuable animals find better grazing and relief from tormenting mosquitoes and gadflies. If food and snow are scarce on the Swedish side, they cross to Norway. In the autumn they follow the animals down to the pine forests and pine barrens, where, under the snow, is the "reindeer moss."



ROLLING OUT THE THIN BREAD OF NORTHERN SWEDEN

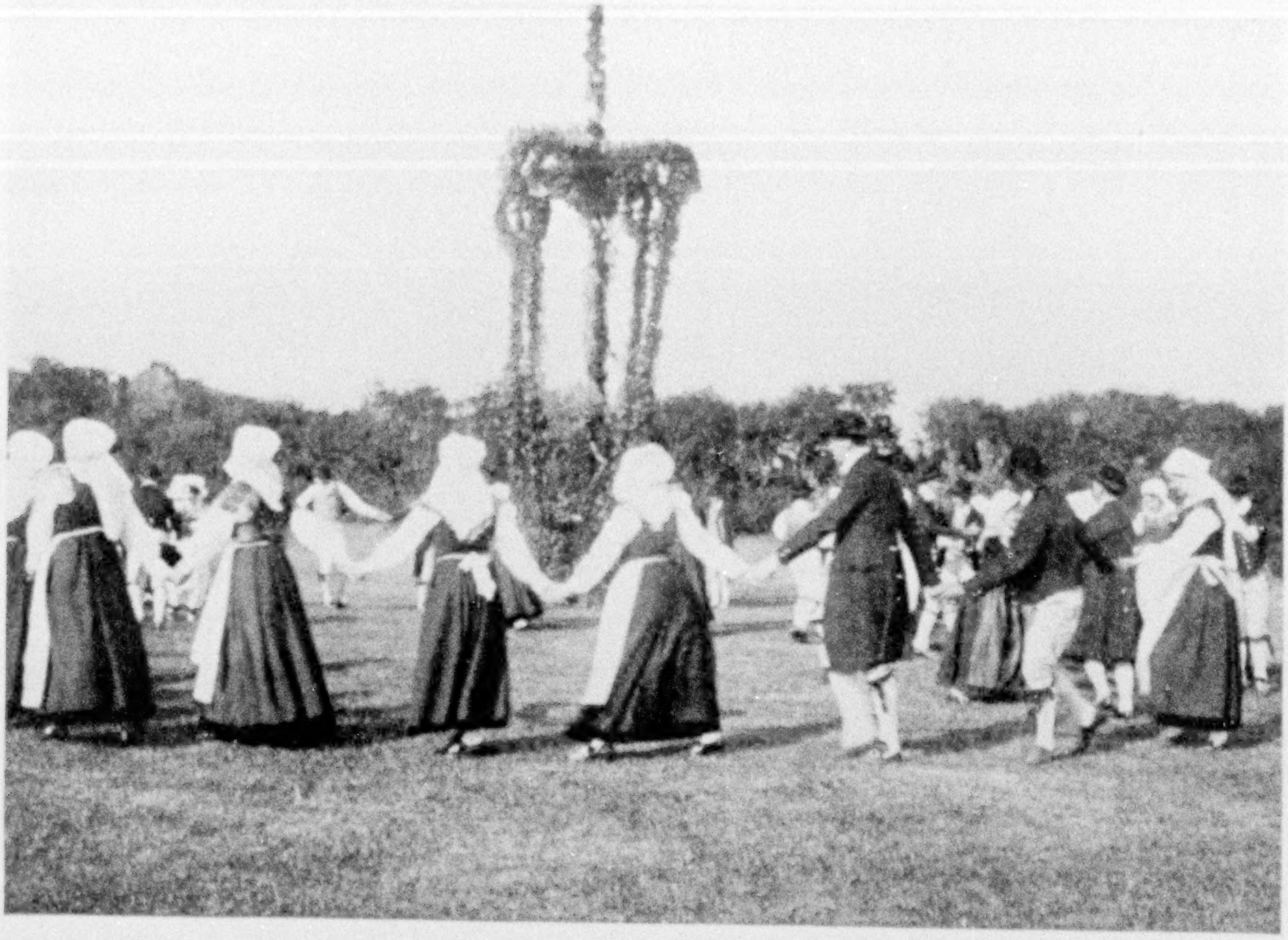
It is only as thick as light cardboard and does not harden, because it is made with a peculiar form of sour milk. The "bread box" in which it is kept is a chest of drawers, usually in the kitchen. Folded sheets of bread have been laid to one side (foreground).



Photographs by G. Heurlin

BAKE DAY COMES FOUR TIMES A YEAR

Rye bread is baked in thin, round disks with a hole in each. It is then strung on a long pole and hung up to the ceiling for keeping. Each "batch" will last the family for three months. This form of bread is made chiefly in southern Sweden.



Photograph by A. B. Nilson

WELCOMING SUMMER

It is Midsummer Day, June 24, and, next to Christmas, Sweden's greatest festival of the year, for on this day the sun has reached the height of its glory. Around the wreathed and garlanded Maypole the villagers, like their Viking ancestors, begin to dance on Midsummer Eve and continue throughout the brief twilight. Despite their use of the Maypole, the Swedish word *Maj* does not refer to the month of May on this occasion, but means "green leaf."

Electricity, derived from waterfalls and rivers, is being substituted by modern industry as fuel that in time will supplant the black coal which Sweden lacks. Black coal heads the list of imports and keeps the balance of trade unfavorable to Sweden, but white coal is beginning to take its place.

ARTIFICIAL HEAT FOR HOTBEDS

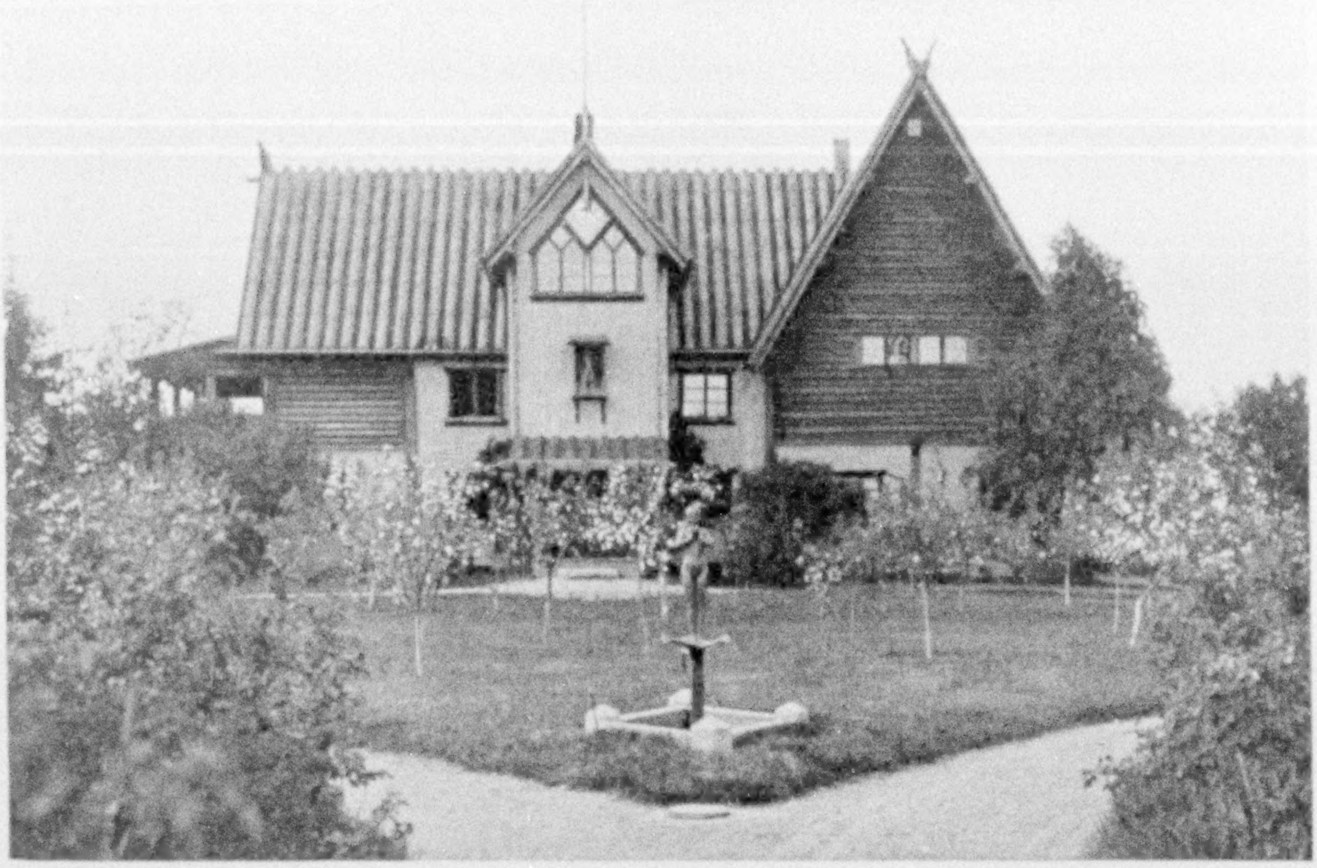
Near the source of supply the electrical current is sufficiently cheap to permit a wide range of experiments with its use. Nearly half the arable area of Sweden is electrified. More and more the housewife depends on electrical equipment that helps to eliminate household drudgery.

One of the most interesting recent experiments is that of heating the soil in hotbeds for gardening purposes. Swedish engineers and nurserymen have adapted the idea to commercial uses by laying out extensive nurseries at Hässleby and Experimentalfältet, near Stockholm, and growing vegetables of almost any description in the sashes, where heat is derived from underground electric cables. Experiments have also been made with the application of this artificial heat to the open soil.

From the point of view of costs, the method is practical, since only the surplus or night current is used. Near Stockholm this can be supplied at the low rate of approximately two öre (a fraction more than half a cent) per kilowatt hour. At Porjus, Gällivare, and Boden, hotbed sashes on a smaller scale have demonstrated the practicability of growing vegetables by this method in arctic and near-arctic regions.

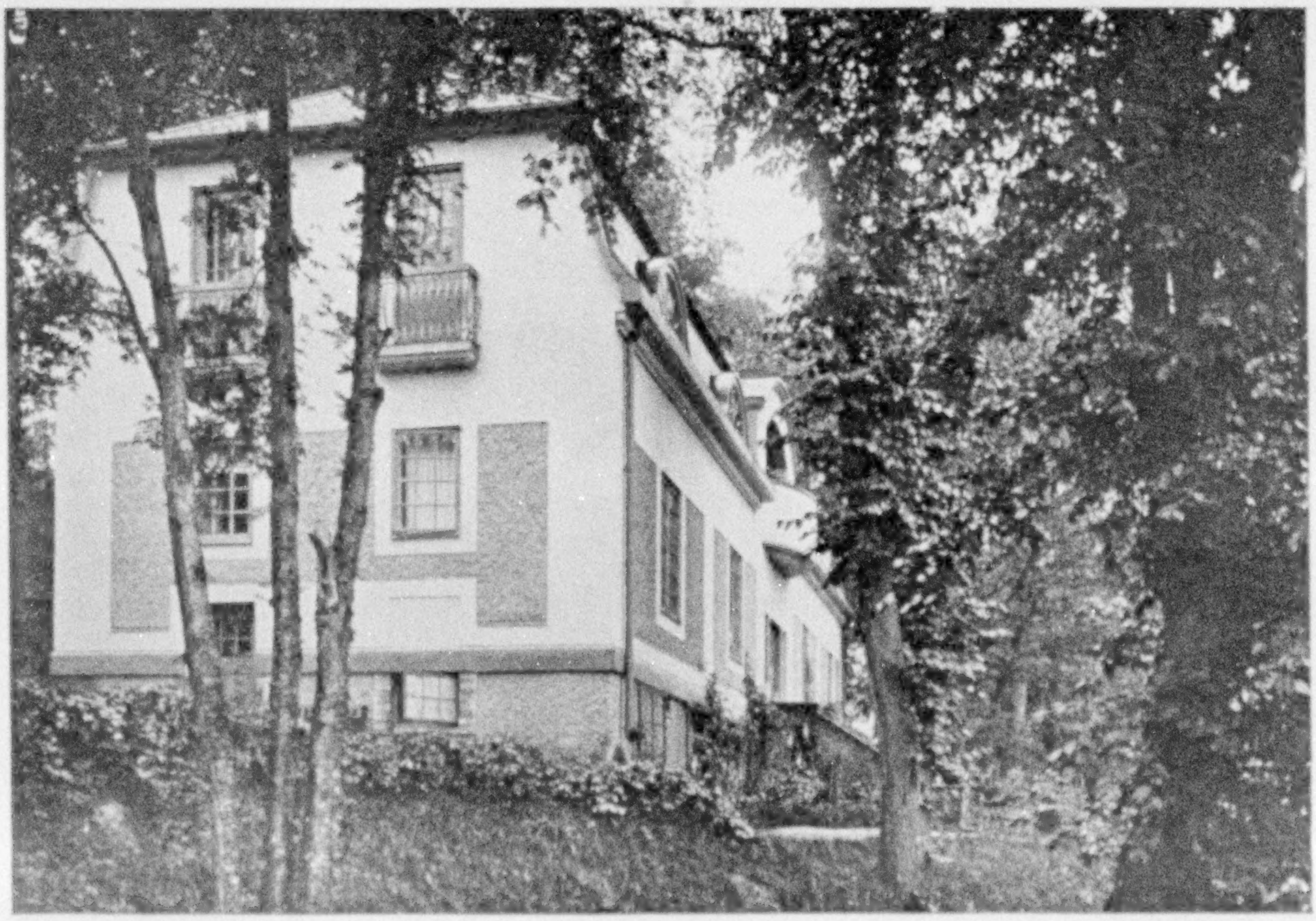
COFFEE A SYMBOL OF SWEDISH HOSPITALITY

Coffee follows black coal in the list of leading imports. The people are inveterate coffee drinkers. In the country districts, especially, the national ideal of hospitality requires that the chance guest



THE HOME OF SWEDEN'S GREATEST ARTIST

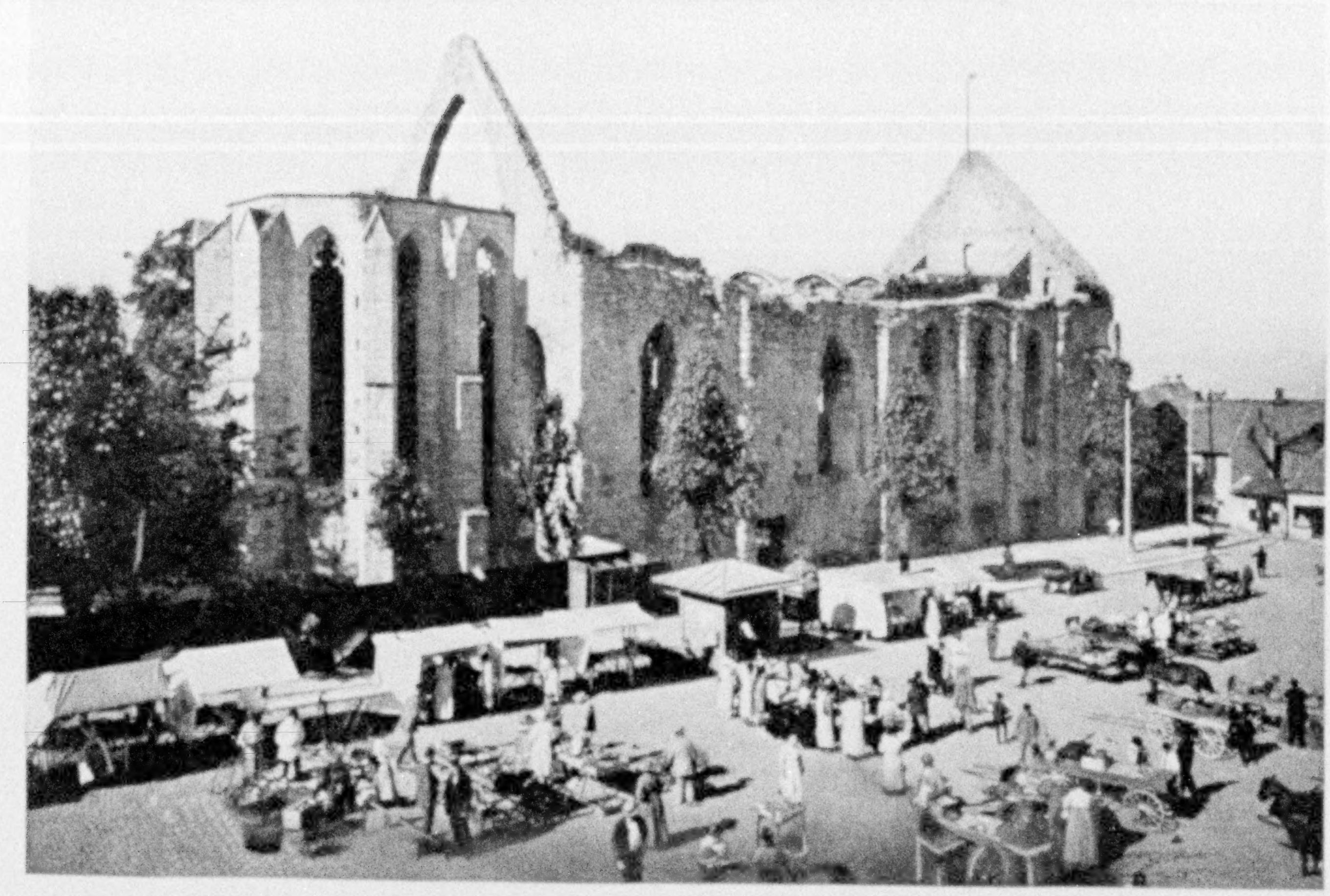
At Mora, on Lake Siljan, the late Anders Zorn was born and here he lived for much of his life, among the Dal peasants whom he loved and whom his art made familiar to the world. He also encouraged the old music, the old customs and industries of Dalarna.



Photographs by G. Heurlin

SWEDEN'S MOST WIDELY KNOWN FEMINIST LIVED HERE

The late Ellen Key left her country place, "Strand," at Alvastra, on the shores of Lake Vättern, as a guesthouse for workingwomen with an aptitude for culture and love of beauty. It is built on land owned by the Government and is filled with books, art objects, and pictures.



Photograph by G. Heurlin

ST. CATHERINE'S, GAUNT IN RUIN, MAJESTIC IN STRENGTH

During the Middle Ages many churches, vast in size, magnificent in treatment, rose in and around the Baltic capital of Visby (see, also, text, page 459). Of the 11 ruins which remain, St. Catherine's, built by the Franciscans about 1230, is loveliest of all. Of equal interest with her churches are the massive walls of Visby, with 37 towers, the most extensive medieval fortifications in northern Europe. Beyond the walls to the north three sinister pillars are silhouetted against the sky—the gallows tree. Tradition says so numerous were the sea robbers condemned to death in Visby that crossbeams were placed from pillar to pillar, and from these the unfortunates were suspended like strings of herring hung out in the sun to dry.

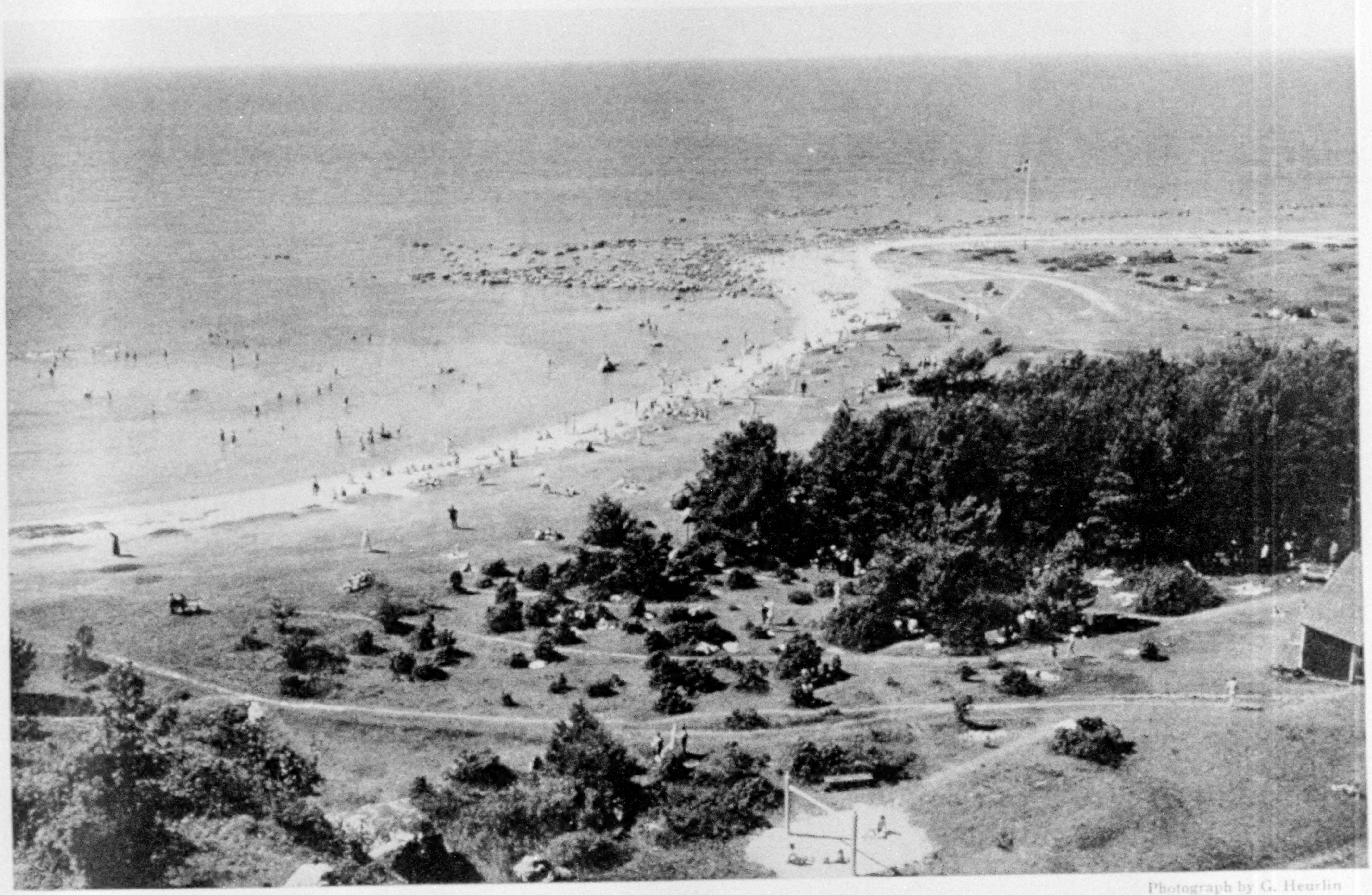
be offered at least a cup of coffee with cakes at any hour of the day he may happen to call. Few can resist the steaming fragrance of the delectable beverage made in the Swedish way.

In cities and towns the boulevard café, with its ubiquitous glass of café noir, is not conspicuous. Its substitute appears in the more sheltered nooks of parks and shady groves. In summer the pièce de résistance of the Swedish meal may be served indoors, but the after-dinner coffee cup, with expansive brim and sugar and cream, becomes an institution in itself and belongs in a setting of tulip beds and flaming dahlias, or of velvety yellow pansies rising out of a blue blanket of forget-me-nots. It is only another manifestation of the love of outdoor life that can be gratified in summer.

That love has proved a stimulus to agriculture, which is slowly yielding place to mechanical developments as the leading industry. The plains of Östergötland and Västergötland and of provinces farther south are fertile and far-reaching. The crops they yield are abundant, but still insufficient for the country's needs, with the result that wheat ranks third on the list of imports.

When I looked out upon the undeveloped stretches of the fertile Torne Valley near Haparanda, in the extreme northeast, there came to me a vision of the rolling prairies of our Middle West. Those prairies, with their greater promise and richer rewards, owe something of their cultivation to the pluck and energy of the emigrant from Sweden during the past century.

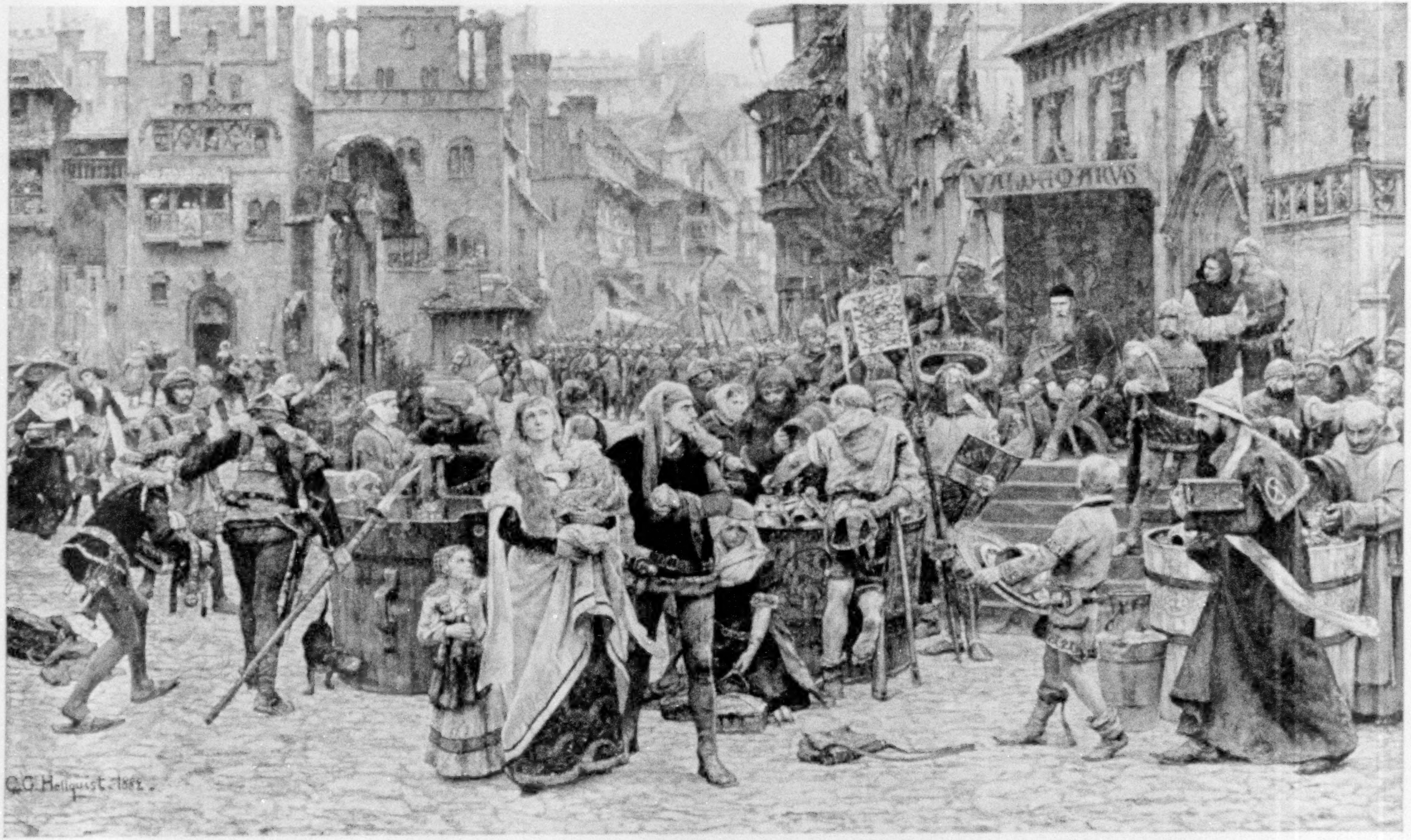
From the depths of the forests of Sweden—they cover approximately three-fifths of its land area—come the commodities that head the exports. Wood pulp, planed and unplaned boards, paper, beams, spars, mastwood, and box boards provide



Photograph by G. Heurlin

PAST THIS COAST ONCE PLOWED THE ARGOSIES OF MERCHANT PRINCES

Like a magnet, medieval Visby, on the island of Gottland, drew into the coffers of her burghers glittering gold from distant trading marts—from London, from Germany, Constantinople, western and southern Russia. Exchanging their cargoes of pitch, tar, limestone, salt, and iron ore for honey, skins, and furs from the north and for the shimmering silks and brocades, for spices, wines, gold and silver ornaments from the Orient, her Vikings of trade built up a city which rivaled contemporary London in size (see text, page 461). This shore, near which once lay her treasure-laden ships, is now the peaceful bathing beach of the island's capital.



C.G. Hellquist 1882.

ONE OF SWEDEN'S GIFTED ARTISTS DEPICTS THE SACKING OF VISBY IN 1361

Among the finest modern paintings in Stockholm's great National Museum is C. G. Hellquist's conception of the capture of Gottland's capital by the Danish king, Valdemar Atterdag. The conqueror (seated on a dais erected in the market place) orders the inhabitants to fill his great casks with their jewels, their silver and gold plate, and their ornaments. Tradition says that the Danes' triumph was short-lived, for as their ships sailed out of the harbor, heavily laden with all Visby's treasure, they were overwhelmed by a violent storm. Ships and treasure alike were lost. Story-tellers of Visby assure the visitor that in clear, calm weather, the glint of gold may be seen to this day among the sands at the bottom of the sea, just outside the harbor. Among the treasures taken in the great raid were two enormous carbuncles, "so large and brilliant that when mounted on the west wall of St. Nicholas church they had served as beacons to seafarers."

Photograph by Donald McLeish

LOADING A GRAIN CART AT LEKSAND

Photograph by G. Heurlin

SWEDEN APPRECIATES THE NEW WORLD'S GIFT TO THE OLD

The potato was unpopular when first introduced into Scandinavia, some 200 years ago; but now it is one of Sweden's most important crops. Turnips are raised extensively for cattle.

nearly half of the nation's annual revenues from exports.

Again I recall the surging force of the Indal and Ångerman rivers and the indefatigable trek of the logs toward the sea (see, also, text, page 443). They are emigrants, too, en route for world markets, with no immigrant quota to bar their advance—a great migration, almost human. Is it because the forests have been depopulated that one hears them sigh?

Ludvig Nordström, who writes of his own "Great-Norrland," tells an anecdote that illustrates the qualities of the foresters of the north. There was a blockade of a floating raft and a bridge was threatened. One log lay crosswise, the cause of all the trouble. A worker noticed this, jumped out upon the raft, struck a blow, and the logs moved down the river; but he went down, too, with the logs.

Photograph by G. Heurlin

THIS LITTLE PIG GOES TO MARKET

In a few moments he appeared again, battled with the rapids, and finally made land. Squaring his shoulders proudly, he asked the foreman, "Was I gone long?"

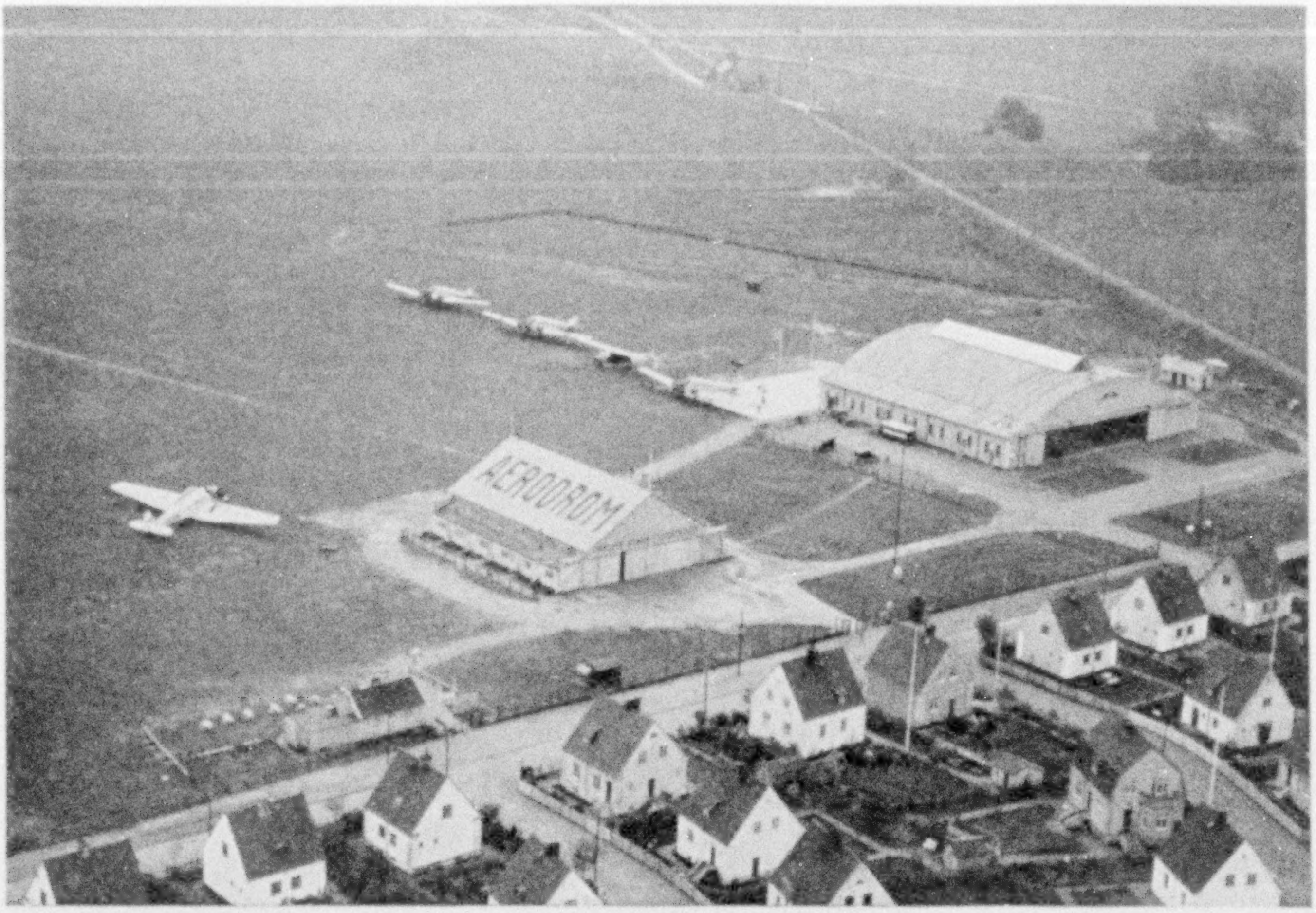
"No, I guess not," drawled the foreman. "At least, not long enough to have your wages docked."

SWEDISH STEEL FIGURES IN POETRY, SONGS, AND EXPORTS

Because of its endurance and strength, steel figures as often in the poetry and songs of the country as in its export tables. The gleaming sword of Gustavus Adolphus, whom Wallenstein derisively called the Snow King and whom the Italians, because of his golden hair and blue eyes, called the King of Gold, and the sword of tragic Charles XII flash through the literature of the 18th and 19th centuries, symbols of the courage and nobility that in the Old World order made nations truly great.

And steel, the economic product, combined with the skill of Swedish engineering science, has penetrated to the remote corners of the civilized world. The actual bulk of steel exports, however, is less than that of crude iron ore, which runs to about 6,000,000 tons a year.

Eskilstuna steel and Jönköping safety matches are world trade-marks of mass production. In Orrefors and Kosta crystal glass, in modern products in pewter and bronze and ceramics, the hand of the Swedish craftsman and artist predominates. Sweden is one of the leaders of



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THE AIRPORT AT MALMÖ, SWEDEN'S THIRD LARGEST CITY

With the increase in facilities for airplane travel, Sweden is being visited more and more frequently by the American traveler. Until now long and complicated railway journeys have served in a measure to isolate Scandinavia.

the new industrial art movement that is striving to make beauty as well as utility one of the outstanding qualities of manufactured products.

Similar principles of experimentation and release from the blind alleys of tradition have been applied in other lines. In furniture, in architecture, the extraneous elements of rococo and baroque are gradually being sloughed off, and there is a return to the mass and line, with modernistic treatment, of the early Vasa period. The newer type of architecture finds expression in the Town Hall of Stockholm, a recent monumental achievement evolved through nearly twenty years of planning and development away from traditional, conventional modes (see, also, text, page 410, and Color Plate VIII).

In art museums the emphasis is overwhelmingly on the work of native artists. Prince Eugene, Bruno Liljefors, Anders Zorn, and Carl Larsson, among the painters, and Carl Milles, sculptor, have wide international fame.

The National Gallery, in Stockholm, commands attention less for its ancient masterpieces than for its sympathetic understanding of local talent, of the living art of to-day. The rooms that contain the canvases of Swedish painters are pervaded by that mystic quality of light that is essentially of the north, the resistive contrasts of sunshine and shadow that give Scandinavian art a distinction of its own.

PEASANTS WEAVE LEGENDS INTO TAPESTRIES

Weaving is one of the oldest peasant crafts of Sweden. It was work for the long winter evenings, when the snow piled up above the window ledges and the tempests howled in the forests. In solitary log cabins, where neighbors might not come for weeks, the women sang at their looms and wove into their tapestries some of the legends learned in childhood.

A note of mysticism pervades even these legends of murmuring forests and surging sea. The *allmoge,* or peasant, art has sur-

Photograph by Otto Ohm

STOWING AWAY AIR-PASSENGER LUGGAGE

Sweden is connected by air lines with Norway, Denmark, Finland, Germany, the Netherlands, England, and France. Last year these lines carried 15,000 passengers and flew more than 200,000 miles. The recent heroic activities of Swedish airmen in the rescue of members of the ill-fated *Italia* expedition have given great impetus to aviation in Scandinavia.

vived and the connoisseur can recognize by the combination of colors, somber or gay, to which one of the provinces it belongs. To-day there is a conscious stressing of the *hembygd* (local province) idea, and textiles and tapestries are adapted to modern needs.

Thirty years or more ago there was also a flowering of this hembygd note in the field of belles-lettres. It gave distinction to the writers of that period and rose to occasional sublime heights in the verse of Fröding and Karlfeldt. It achieved the widest popularity, which extends to 22 countries, for the friendly province of Värmland through the legends that Selma Lagerlöf gathered into "Gösta Berling" and "Jerusalem," the two supreme achievements of her pen.

Now every novelist and poet is tramping the trails of his hembygd. Time and again I heard Swedish critics say, "We are waiting for a renaissance, waiting for the clear, strong voice that will rise above the deadly monotony of mediocrity."

ADVANCED SOCIAL AND ECONOMIC LEGISLATION

Like the rhythm of repeated drum-taps comes this individual note from each province; but the surging undertone of national life wells out of that bond of common origin, language, ideals. Legislators and other leaders of thought concentrate upon constructive measures for the national good; and out of such intensive focusing comes now and then a new social or economic evaluation or advanced legal measure.

The one that has probably attracted the most widespread attention abroad is Sweden's handling of the problem of liquor control. At the beginning of the 19th century distilling of liquor was a

Photographs by G. Heurlin

THE FISH MARKET AT KARLSKRONA

This Baltic seaport is the country's chief naval station. In American naval affairs Sweden has played an important part. A Swede, John Ericsson, was one of the first to develop the screw propeller—a device which revolutionized navigation—and built a screw-propelled warship for the United States, with which the foundation of the steam marine of the world was laid. Ericsson also built the famous *Monitor* (see, also, Color Plates XII (upper) and XV (right).

government monopoly. Among the peasants drinking was actually encouraged as a means of keeping the exchequers of Gustavus III well filled. Drinking became a national habit, a national vice.

The vigorous efforts of Canon Wieselgren, of Göteborg, in the middle of the century, and the later prohibition campaigns effected no real reform; but, after many experiments, Stockholm finally, in 1914, adopted a system of control sponsored by Dr. Ivan Bratt and popularly known as the Bratt System.

Sale of liquor is in the hands of licensed "system companies." The right of purchase of spirits and strong wines containing more than 22 per cent of alcohol is generally limited to a maximum of four liters (about eight liquid pints) a month, and is in the main given only to one member of a family. The limit is lower for unmarried women and for young men.

The purchaser signs one of the requisition forms in his control book and turns in the form with each purchase he makes. He can buy only at the shop for which the book has been issued.

Another piece of unusual legislation is the new marriage law, the first part of which went into effect in 1917. It makes such slight discrimination between man and woman that the two words are practically omitted from the text, and "mate," denoting common gender, takes their place.

Divorce is obtained on the grounds of mutual consent. If a husband and wife agree to disagree they merely state that fact, and no other, before a representative of the law and are thereby entitled to a probationary separation for one year. At the end of that period a divorce is granted, if desired by one or both of the contracting parties. At no time does the law require them to state the specific grounds for the step, if they are mutually agreed.

Among the Swedes, the general level of training and culture is exceedingly high.

Speak the language of the hotel porter, railway conductor, or school child, and he will divert you with bits of information about the medieval history of his town, the engineering difficulties of the upgrade on which you may happen to be traveling, the varied flora in meadow or on forest edge of the land of Linnæus.

COMPARED TO THE SWEDE, THE ENGLISHMAN IS JOVIAL

Such is the more serious side of Swedish working life to-day. There is a gayer, joyous side, which the stranger comes to know only by degrees.

The Swede possesses an extraordinary amount of reserve. An Englishman is jovial and hail-fellow-well-met by comparison. There is little of the casual give-and-take, no constant rubbing of elbows with foreigners, no quick grasp of alien points of view. Instead, one finds an excessive formality in manners. The one blot on Swedish social life, it seemed to me, was an undignified attention to titles (those not inherited or arising naturally from professional rank, but springing out of "commercial caste"). These ubiquitous titles, together with a serious regard for social position, struck me as antiquated and a bit absurd (see, also, text, page 419).

"Do you really find us so frightfully reserved?" I was frequently asked. At first I dodged, but when I learned to know the hidden sterling qualities of my interlocutors better I began to retort, "Shall I be honest or polite?"

Month after month, in railway compartment or on steamer deck, I faced an uncommunicative native traveling population. Lacking the usual diversions, I had to find my own means of amusement, my favorite being one of drawing up the setting for a little farce comedy on Swedish manners as the stranger sees them.

The first act was always the same: Sweden timidly venturing on a Speak-to-Strangers Week. The second act was pervaded with the gloom that is inevitable when mortality figures run high. There was a survival, however. And in my final act those survivors, greatly daring, had launched themselves recklessly on the yet more perilous sea of a Speak-to-Each-Other-in-Public Week.

When Charles XII had reached the ripe age of twelve he spoke with the maturity of a man who had killed his first bear and of one, consequently, who was qualified to outline his ideal of the perfect gentleman: "He ought to be kind, but have a stout heart; grim as a lion to his enemies, but gentle as a lamb to those at home."

By and large, the Swede is grim to his "enemy," the stranger, but graciousness itself when the stranger becomes the friend whom he welcomes into the glowing radiance of his home.

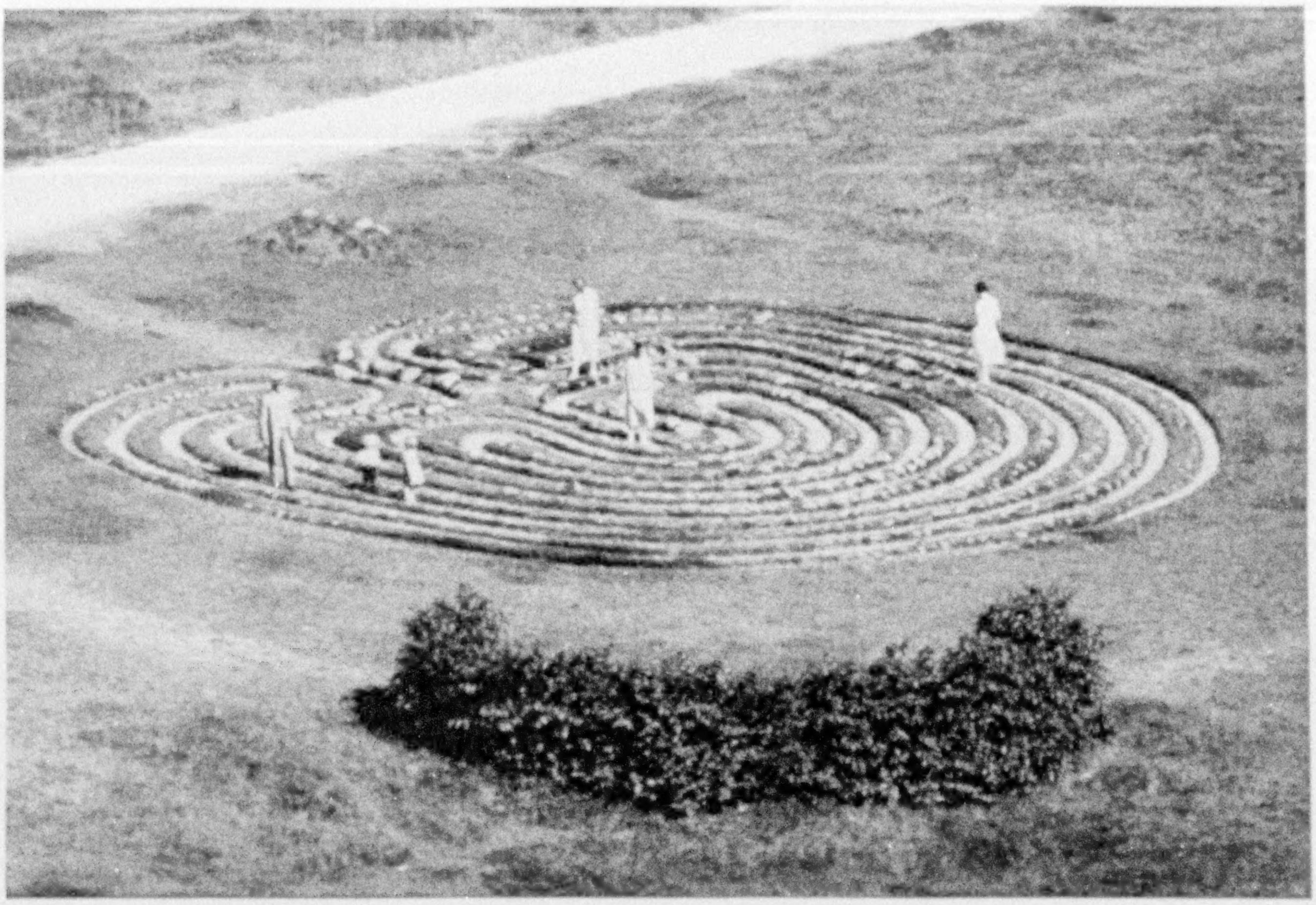
And the Swedish home is the most complete manifestation of the charm and loveliness of Sweden to-day. In medieval château that has passed through generations of titled heirs, in governor's mansion, in luxurious city or country house, in miner's cottage, in backwoods log cabin, in primitive mountain dairy, I encountered Swedish hospitality.

The tradition of breaking bread is time-honored. It goes back to the centuries that faced the cruel rigors of the northern winter, when comforts were unknown, and to the bleakness of sparsely populated regions. It recalls the traveler's joy when he caught the first gleam of a friendly light in far-off window, as he emerged into a forest clearing or rounded a promontory reaching out into a stormy sea.

HOLIDAY MERRIMENT

The joyous side of Swedish life is accentuated at holiday time. On Walpurgis Eve, our May Day Eve, youth gathers in park or college campus around the Walpurgis fires, built according to well-known traditions. Empty barrels requisitioned for the occasion are perched on high poles, drenched with tar, and set on fire. The flames crackle and leap. The students who have passed *examen* come out for the first time in their white student caps, and in singing processions they go, like Druids marching around their Beltane fires. And the flickering light follows the rhythm of old folk dances.

At midsummer the peasants go on their annual pilgrimage. By the thousands they flock into the little villages and hill towns of central Sweden. In log cabin fresh birch leaves have been scattered on the pine floors scrubbed to a glistening white. In the main streets of the villages the doorway of every home and shop is outlined with the graceful, white-stemmed branches.



A GAME IN WALKING: A SWEDISH LABYRINTH

The dancing that begins around the village Midsummer Pole, garlanded with green and topped with the blue and yellow, the national colors, often lasts through the night of mystic half light (see page 473). These artless ceremonies are like a pagan survival of the days when men worshiped the sun.

Christmas encompasses the turn of the year. It begins with the lighting of the candles on December 13 to honor Santa Lucia's Day. There is brewing of the Christmas ale and steeping of the dried *lutfisk*, a stockfish that suggests kinship with the cod. Days of merriment and feasting follow. The ceremonies, many and long, continue until Hilarymas, when both the Christmas greens and Father Christmas himself are expected to dance nonchalantly out through the door.

ICE AND WATER SPORTS POPULAR

Sport captures much of the zest for life. With the first snows of winter, young and old take to their skis for cross-country runs. Skating, tobogganing, bobsleighing, and ice-yachting are popular. In favorable winds an adept at ice-sailing counts on the invigorating momentum of 50 miles an hour (pages 468, 469).

About an eighth of the total area of Sweden is water. In addition, the long, indented coastline brings an increasing number of the inhabitants within range of the open seas or their briny inlets. In July the summer season is at its height. Every rocky or sandy beach is gay with lazy bathers and more strenuous divers.

When there is wind, the seaside resorts around Göteborg and Stockholm suggest continuous regattas. One gets the impression that every Swedish family possesses a rowboat, motor launch, or yacht.

Enjoyment of life is an outstanding national virtue. The Swedish people are not boisterous or volatile. They live quietly and contentedly. Suggest prosperity and they will contradict you. For all that, nowhere else in all Europe is the standard of living so high.

Stockholm, the capital, turns away from the West. Sweden faces the Orient. The winds of industrialism coming from the West seem to have been tempered by the restless battling of the North Sea and the lofty protecting ranges of the Norwegian snow-capped fjelds. It is as if Sweden had looked beyond the turbulence of Russia and caught and preserved the spirit of the once serene East.

THE KIZILBASH CLANS OF KURDISTAN

By Melville Chater

Author of "Rediscovering the Rhine," "East of Constantinople" (Village Life in Anatolia), "Skirting the Shores of Sunrise," etc., etc., in the National Geographic Magazine

AFTER a hard week of mountainous journeying across western Anatolia, I found myself atop the world at Kharput. From that sheer crag, jutting thousands of feet above the vast plain which stretches southward into far Mesopotamia, I anxiously studied the cupping ranges of Taurus and Anti-Taurus, wondering if overnight their resplendent lavender tints might not disappear under travel-forbidding snows.

"Plenty of time!" my American host assured me. "We'll get you to the seaboard, with a party of outgoing relief workers, long before the Kurdistan passes are closed."

So I wandered through the tortuous, high-walled streets of the town—remotely perched among crags, like some dilapidated eagle's nest—its quaint bazaar crammed with tiny open-faced shops. Windowless and doorless, save for the slablike shutters which were slammed to at night, they resembled supersized packing cases, set up on end with the lid off.

A GLIMPSE INTO THE BAZAAR

Within, one glimpsed the leather cutter, squatting at the section of tree trunk which formed his workbench; or the bird seller embowered among caged, red-billed songsters; or the lamp dealer, surrounded by American kerosene tins and suspended clusters of henna-dyed candles. And one must not forget the patriarchal rug merchant, smoking his cigarette in a yard-long holder, while, with a finely feigned indifference to trade, he lounged princelike on heaps of gorgeous Persians and Bokharas.

Under the street canopy of rags stretched on poles passed black-veiled and baggily clothed Turkish *hanums*, overladen children and donkeys, Kemalist soldiers and fierce-faced, shaggy-haired Kurds, armed to the teeth. The itinerant knife grinder was doing a brisk trade with these Kurdish gentry, who are Anatolia's premier wielders of cold steel.

About the public fountain, upon whose white-tiled structure is graven a green-and-gold inscription of thanks to Allah, the water-giver, swarmed women drawing their household's daily supply.

And if any American girl thinks it's easy to walk with a five-gallon water jar on one's shoulder, while retaining an air of unconscious grace, just let her try it! But the proverb about the pitcher going to the well will soon be meaningless to the Anatolian Rebekah, who nowadays usually frequents the fountain with an American gasoline container poised on her head.

"Hullo, Johnny! Where you coming?"

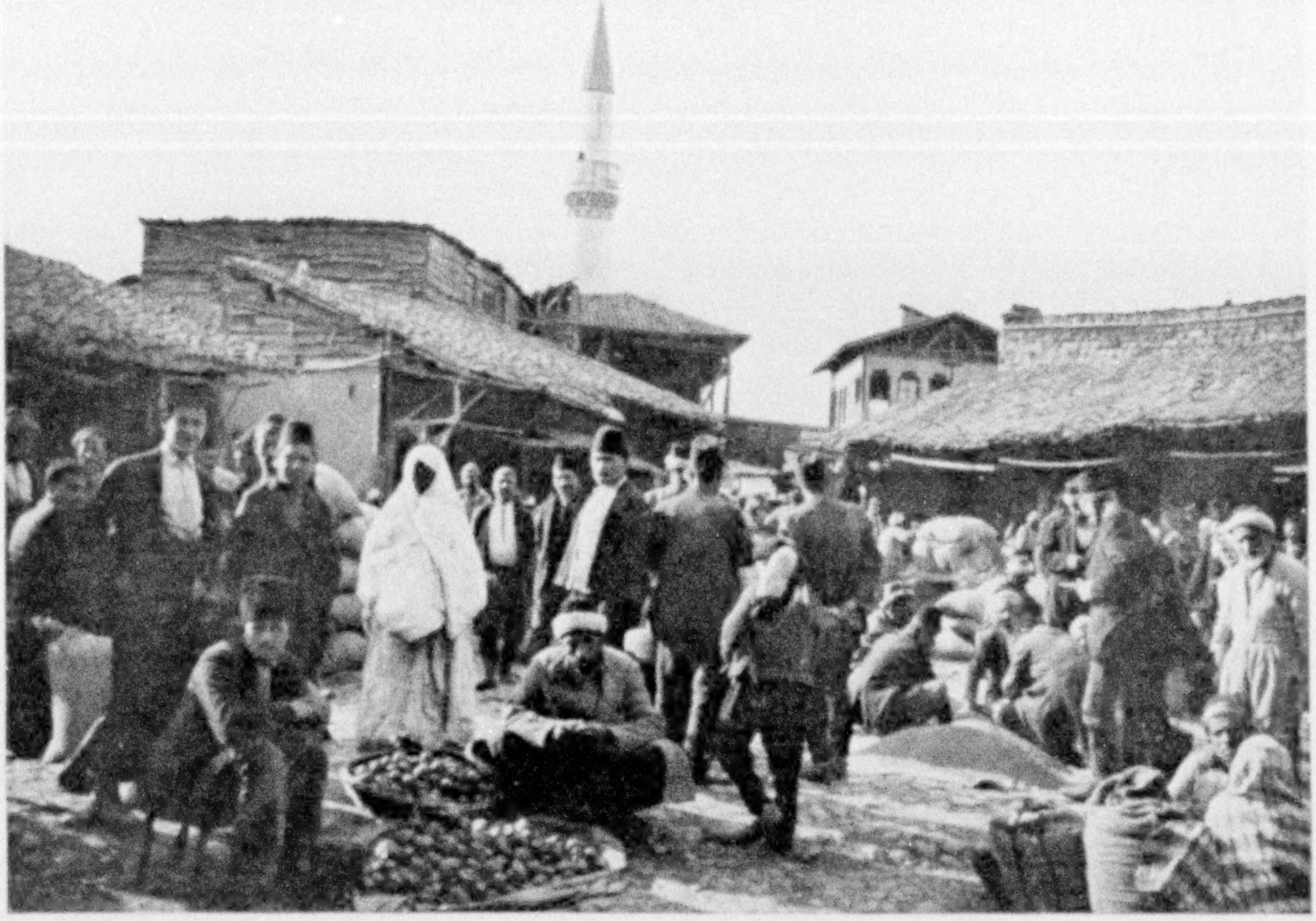
The speaker, a broadly grinning Turkish soldier, explained to me that he had been "shoemaker in damfine town, Brockton, Mass." (There are hundreds like him in Anatolian towns.) And he went on to say that one of the women water-carriers wanted me to translate the "American prayer" stamped on the side of her gasoline tin. It was a brief prayer, consisting of but one word, a trade name. The best equivalent I could muster up was, "Praise God, from whom oil blessings flow." And the lady retired, convinced that the trademark was an American exorcism directed against the evil eye.

These containers were bringing higher prices than the graceful water jars that the local potter was turning on his primitive lathe. There is no tin plate in Anatolia, and hence these "empties" are eagerly bought up and resmithied into kitchen utensils, stovepipe, and even roofs. Indeed, both at Marsivan and Malatia, one may hear the call to the faithful proceeding from minarets whose "candle-snuffer" peaks are obviously sheathed in the same material stamped with the same "American prayer" (see pages 491, 504).

KHARPUT HAS WATCHED THE TIDE OF EMPIRES

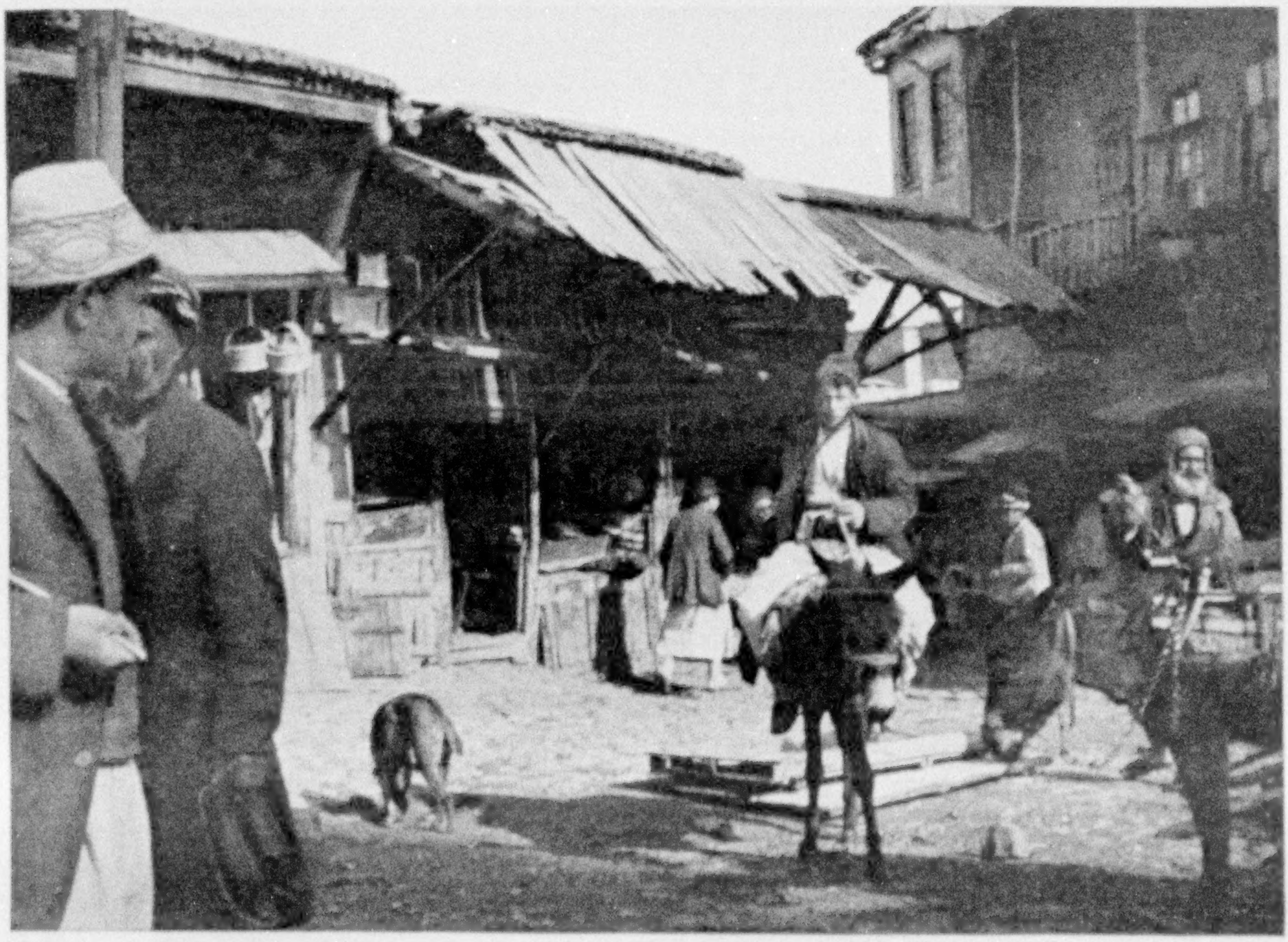
Magnificently set, Kharput has for ages watched the tide of empires—the Hittite,

XUM



THOUGH SMALL OF STATURE, KURDS ARE OFTEN VERY POWERFUL MEN

Kurds are the porters, or "hamals," in cities like Mosul and Baghdad. They carry prodigious loads. Once a Baghdad Kurd carried a piano, without aid, across the city and up a flight of stairs, into the American Consulate.



Photographs by Melville Chater

FOR SOUNDS, SMELLS, COSTUMES, AND FOODS, KHARPUT'S BAZAAR IS PECULIAR

Photograph by L. H. MacDaniels

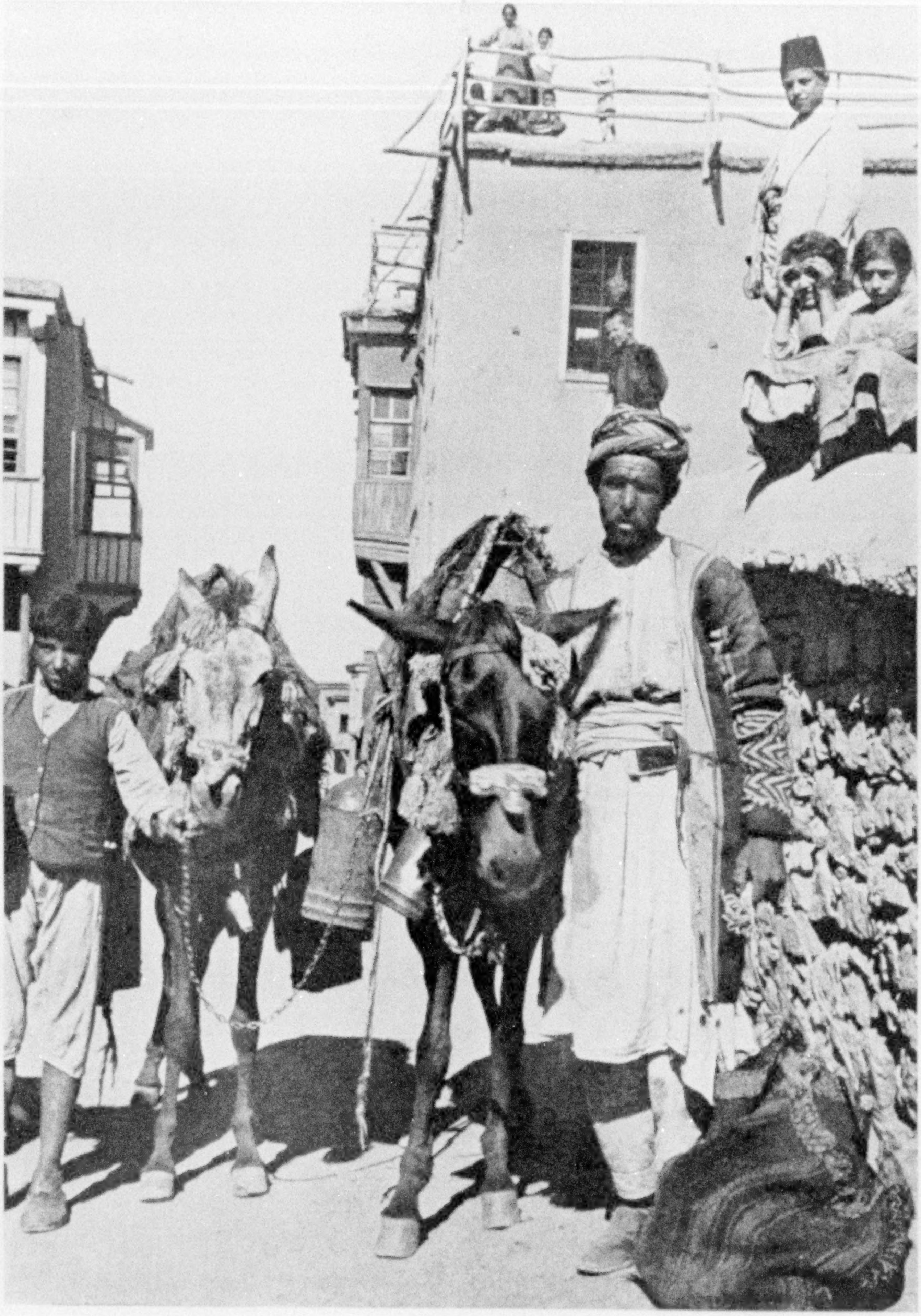
THE APPROACH TO KHARPUT IS STEEP AND WINDING

Situated about 1,000 feet above the surrounding plain, the town occupied a very strong defensive position before the days of airplanes and long-range guns. There has probably been a settlement on this site for 2,000 years.

Persian, Greek, Roman, and Turkish—successively rise and fall in the Euphrates-girdled plain below. Its ruined castle still displays the sheer walls from which, in crusading days, its Frankish and Armenian defenders and their "eighty beautiful ladies," says the old chronicler, were hurled into the valley by their Moslem conqueror. From those same walls one may see the near-by mountain pass, which still shows traces of the remains of those men and women who were similarly hurled into its abyss during the Armenian deportations of 1916. Surely the East and its ways suffer small change!

This particular massacre was supposed to be the handiwork of the Kurds, those fierce-faced gentry whom I had seen in the bazaar. Kharput is on the flanks of Kurdistan, and from time to time its men folk descend from their mountain fastnesses to sell wood, to barter, and not infrequently to make thieving forays. Thieves and murderers or no, those dark, aquiline-featured men, whose eyes glint with an ancient untamed savagery, stand out among other Anatolian peoples like eagles among barnyard fowls.

Several of the Americans at Kharput had had experiences with the Kurds. There was the doctor, to whose hospital—the only one within a 100-mile radius—



Photograph by L. H. MacDaniels

THE BURRO IS STILL WHEELBARROW AND TRUCK IN THE NEAR EAST

This "short and simple animal of the poor" is cheap and sustains life on the scantiest forage. In a land where roads are usually merely rough paths, and in towns whose streets are often too narrow for vehicles to pass, he moves most of the burdens. A street scene in Kharput.

came men and women who had traveled by oxcart for two or three days for treatment or operation. The doctor's contact with the Kurds began when she started a nursing home for Armenian mothers of Kurdish babies. These girls had been forced into Moslem harems during the deportations, and had since made their escape. The "door-step babies"—that is, the foundlings who were deposited by night on the hospital steps—at least involved no social problems. They lay squalling lustily in their makeshift cradles—American packing cases—each having been informally christened after the trademark on its respective box. (The Messrs. So-and-So, of soap fame, or pickle notoriety, or canned-soup distinction, have each a squally, black-eyed namesake at Kharput—see page 492.)

KURDS CLAIM RUNAWAY WIVES

It was the properly mothered babies, whose Kurdish fathers were always appearing with demands for the return of wife and child, that kept the doctor's life from being a drab one. Turkish law gives the father exclusive rights in the child; hence the Armenian mother must either relinquish her baby or return submissively to the harem. If there are no children, the Kurd will retrieve his runaway Christian wife by stating in court that she took some of his property with her—that is, the clothing in which she fled. And one Kurd, who camped out on the nursing-home's front steps for a week, laid legal claim to the possession of his escaped "wife" on the ground that she was the mother of his yet unborn child.

"My car broke down," said one American at Kharput, "in the Dersim region, and we—three American girls and myself—were held up by a band of Kurds and stripped of our possessions. The girls tried the charm of music by serenading those wild, white-clad ruffians with 'K-K-K-Katy!' but it didn't go. They insisted that we must accompany them to the mountains in our strange vehicle. Once we Americans were aboard, our chauffeur started a terrific backfiring; and the last we saw of the Kurds they were flying up the foothills, yelling something about devils."

As for the local authority on Kurds—an American missionary who had spent most of his life in the country—he shook his head when I proposed a trip into the Dersim region. "They're 'half devil and half child,'" he told me. "Though they're supposed to have been under Turkish rule for the last four centuries, they still refuse to pay taxes and still live in clans, which are generally fighting each other when they're not fighting the government.

"All told, there are some two and a half million Kurds scattered throughout the Near East. About half of them are orthodox Mohammedans. The remainder are called Kizilbash—that is, Redhead—because they wear red turbans. They profess an extraordinary mixture of Mohammedanism, nature worship, and Christianity.

"They are a 'peculiar people' and have a kind of freemasonry, whereby one Kizilbash secretly recognizes and salutes another. Sometimes I've stayed overnight with Kurds. The family, my horse, and I all dined on the same dish—cracked barley. Though the law of hospitality protects you while under their roof, they consider it perfectly honorable to attack you, once you're outside their front gate. No; the Kurds are better off your visiting list."

However, as it chanced, some of us were destined to put them on our visiting list before long.

It was early November when an outgoing party, consisting of two men and four ladies, started on a journey to the coast. While it is but 450 miles by road from Kharput to the Black Sea port of Samsun, the country presents a redoubtable combination of mountain ranges and bad roads.

NO WAYSIDE ENTERTAINMENT IN ANATOLIA

Wayside entertainment for man or beast scarcely exists. Police protection, signboards, medical succor, service stations—such things are not found in Anatolia's wide wastes. Typhoid and typhus lie in wait for the too-casual water-drinker or the too-casual mixer with native peoples. And so, when our motor truck was cranked up under the gaze of certainly a thousand Armenians who crammed the flat roof-tops to watch our departure, we passengers were almost the smallest item in a traveling ménage, which included camp bedsteads, stoves, canned goods,

Photograph by Melville Chater

CARRYING A WATER JAR IS NOT AS EASY AS IT LOOKS

The lady members of the author's caravan took a try at carrying a water jar native fashion. To the uninitiated it soon becomes very heavy.

blankets, medical kits, drinking water, lanterns, six duffel bags, and a sufficiency of gasoline.

Seated on the duffel bags and swathed in rubber blankets—for a torrential rain was beating into our open truck—we slid down the thirty hairpin curves which drop dizzily from craggy Kharput, and found ourselves on the plain, squirming slowly along through a sea of primeval mud. At the first hill our wheels churned tremendously, while the car actually slid backward through the slime. So we descended and plunged ahead, knee-deep during the three hours that it took our chauffeur to unbog the truck.

One of us expressed his dismal amazement as to why, from Hittites to Kemalists, people had always been fighting over such a land. And the cynic of the party, scraping off his personally collected mud with a jackknife, replied bitterly: "Not fighting *over* the country, I'd say, but in their mad rush to get out of it."

At the Murad Su, or East Euphrates, we again descended to ford the stream on foot. In my category of things missing from the Anatolian landscape, I neglected to mention bridges. For, while any considerable river of the country is spanned by Roman or Turkish masonry, a slight cataract of a few feet in depth is deemed unworthy of attention. So our party waded across, leaping from rock to rock, while the chauffeur navigated his car through the swirl, silently praying that the water might not mount to his engines. By dusk we were paralleling the main Euphrates, whose banks revealed a Turkish khan, the first human habitation we had seen during our nine hours, or 41 miles, of travel (see, also, pp. 496, 497).

THERE ARE DEGREES IN INN ACCOMMODATIONS

Now, men have described—have feebly attempted to portray the Anatolian inn, but perhaps no one has ever equaled the guidebook writer, who pregnantly observes that, "in nine cases out of ten, it is preferable to camp out than to patronize them." I have carelessly termed the khan

Photograph by Melville Chater

WHERE TIN CANS ARE "JEWELS OF GREAT PRICE"

Tin plate is conspicuous by its absence in Anatolia, and empty cans are in great demand, as they can be fashioned into kitchen utensils, roofing, etc. (see, also, text, page 485).

a human habitation, whereas it is more fitly described as a two-storied, mud-built stable. We stopped at five of them en route to the sea, but I grudge falling into the guidebook lingo that "a description of one of them must suffice."

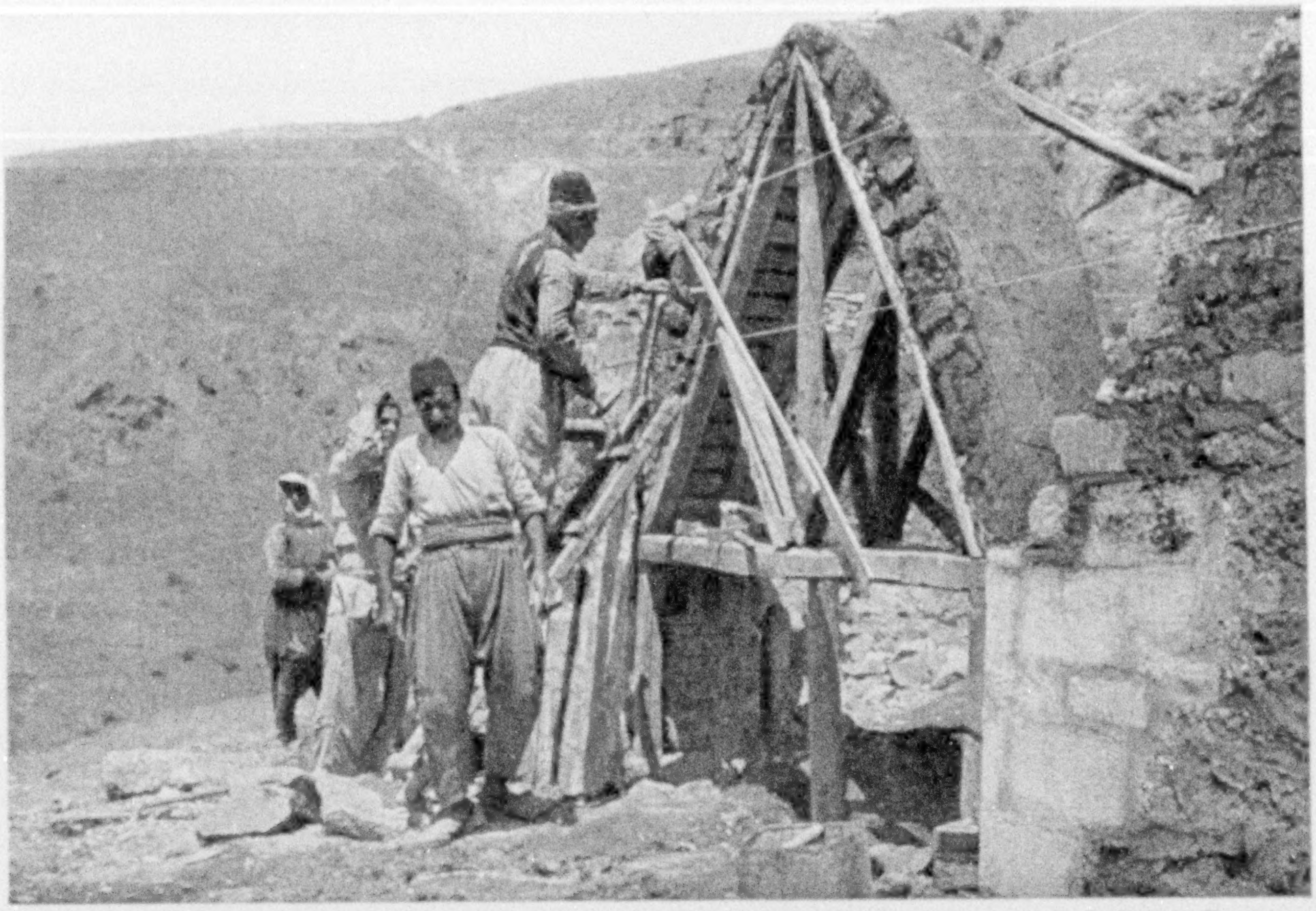
For there are degrees in khan accommodations. Sometimes, for instance, you sleep among the camels and bullocks, and sometimes merely in an adjoining stall. Sometimes you are rained upon through but one gap in the roof, and sometimes through several.

The khan is built circularly or squarely about an open courtyard, where rickety uprights support the veranda or gallery by which those travelers who object to animal companionship may reach their upstairs stalls. But, once abed, you find that animal companionship is inescapable; cattle downstairs, fleas upstairs—whichever you prefer. Your stall is a square, mud-floored, mud-walled space with a mud platform at one end, a window hole cut in the wall, and a crazy door which seldom shuts and never locks. Instead of furniture, fireplace, light and food, there are just two lonely things—yourself and your baggage.

Disregarding the guidebook's warning, we drove blithely into the khan courtyard, where one glance told us the worst. But the ever-cheery member of our party hailed the ragged *oda-bashi*, or porter, with: "Boy, page the proprietor!" and when the *khanji* appeared, scooping his right hand upward from knee to lips and from lips to forehead, in a profound salaam, our friend continued: "Six rooms with bath on the sunny side overlooking the park, and not too near the elevator. What, all taken? Then two of your troglodyte dwellings upstairs."

IN ANATOLIA THE GREATEST OF WORDS IS "HURRY!"

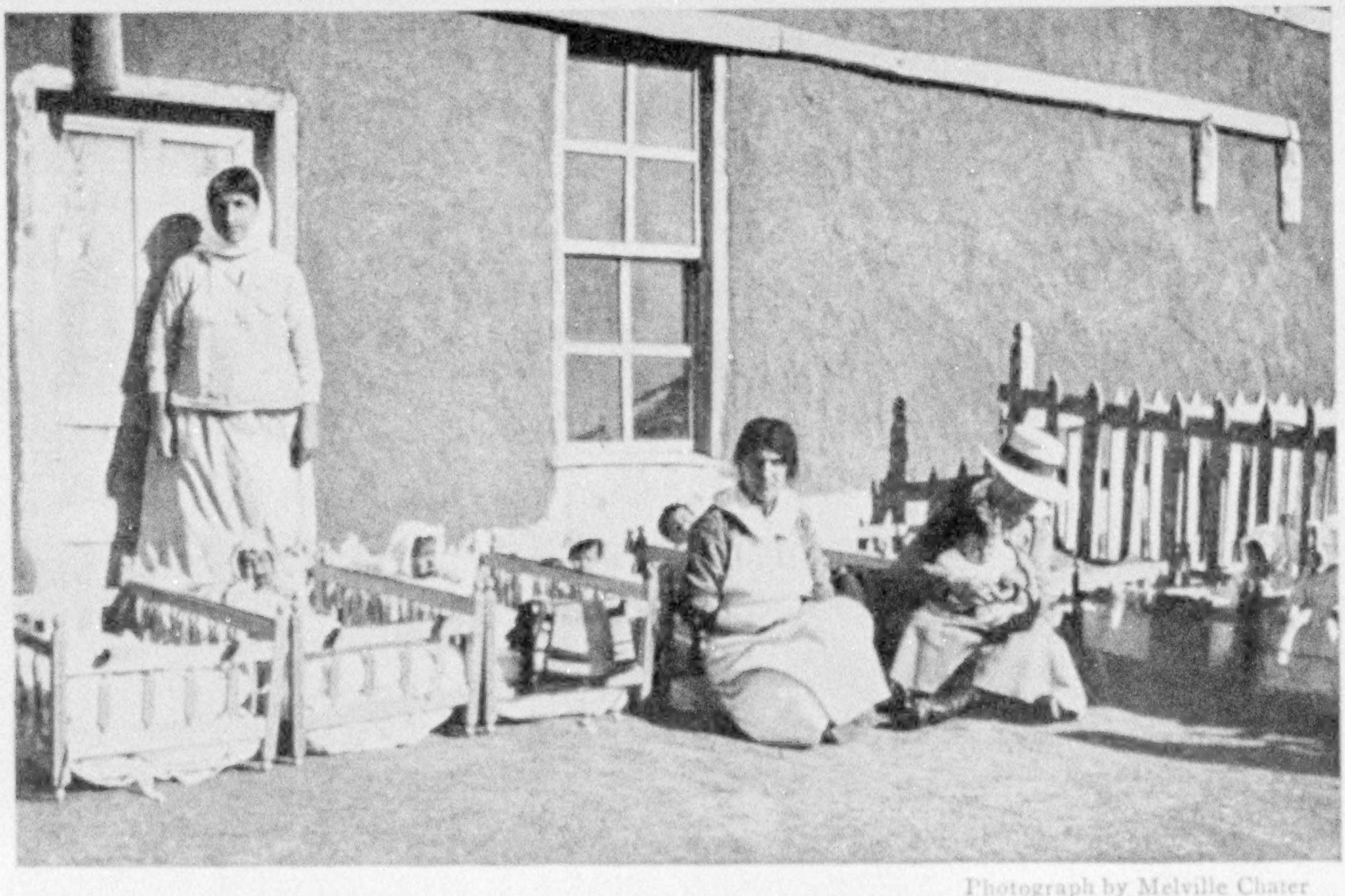
Khan accommodations being so simple, the language necessities are equally so. You need but four Turkish words: "water," "fire," "porter," and "hurry." And the greatest of these is "hurry." We eliminated water and fire because the former was bad and the charcoal brazier smoked. As to the porter, it took him an hour to transfer the truck's contents to our rooms, the "hurry" never putting in an appearance during our stay.



Photograph by L. H. MacDaniels

BUILDING A FOUNTAIN AT KHARPUT

Early Mohammedans regarded the pointed arch as an emblem of their faith.



Photograph by Melville Chater

"DOORSTEP BABIES"

What with marching armies, deportations, and wholesale migration, due to famine and changing frontiers, old-established communities have been dispersed and families scattered far and wide, especially since the World War. Babies in this Kharput nursery are the children of Armenian mothers, though their fathers were Kurds (see, also, text, page 489).

Photograph by Melville Chater

EVERY KURD LIKES A BELT KNIFE AND KEEPS IT SHARP

Blades are not used for decorative purposes in Kurdistan. Their owners are quite willing to use them on one another, and do so with little concern.

The oda-bashi sprinkled a carafe of water on our dirt floor, spread a battered rug on the dirt platform, then retired, bowing.

"Why the rug on the mud bank?" asked my companion of the khanji.

"It is the divan," winningly replied the other, "whereon, I trust, the effendi will pass the night in pleasant dreams."

When he had salaamed himself out, we set up our camp bedsteads, extemporized a dining table out of packing boxes, then called the ladies, who prepared our canned-goods meal on solid alcohol by candle-light. During the meal an overpolite Turk appeared, demanding a five-dollar bridge toll. We insisted that there must be some mistake, inasmuch as there was no bridge where we had passed the Murad Su; but he said the charge was perfectly correct—that there was going to be a bridge there, some day.

According to khan customs, we were abed by 8 o'clock, and were up next morning at 5. I occupied the interim in acclimating myself to sleeping under an umbrella—the leaks in the roof being plentiful. My less-fortunate companion, who had no umbrella, drowsily muttered something about "bedroom, kitchen and bath, all in one." As to the fleas, I was just wondering why I was the only one to be thus afflicted, when through the thin wall I overheard one of the ladies sigh irritably:

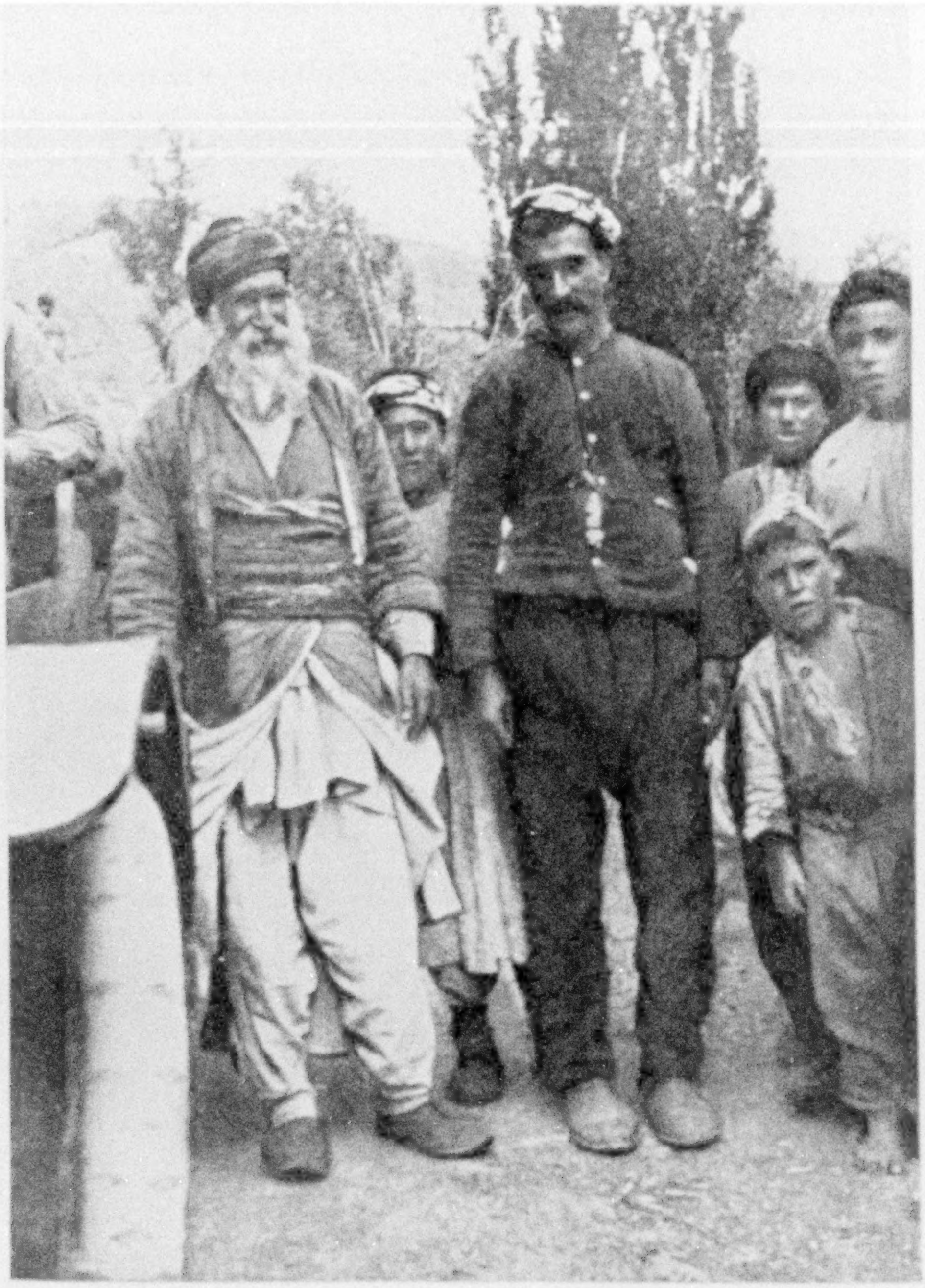
"I could sleep if it wasn't for these——."

"Shake yourself off, Miss Brown," replied another irritable voice, "and you'll get rid of your——."

"My?" indignantly retorted the first voice. "What do you mean, Miss Jones? *Mine,* indeed!"

ALI PLEADS FOR BACKSHEESH

When, at daybreak, I peered out of our window hole, I saw the oda-bashi and a public scribe, with his little writing box, squatting face to face on the Euphrates bank. The document which they were concocting was handed to us by the boy, as we sat about on duffel bags, at our canned-goods breakfast. Penciled in English, it ran:



Photograph from Melville Chater

A KURDISH PATRIARCH

In the old days the Turks, in order more easily to control these wild hill tribesmen, imposed on them the state religion of the Sultan. To many Kurds, however, the Moslem religious rites are still little more than formalities (see, also, text, page 497).

"My jentill father, my jentill mother: I poor man. Give mone to mee.

"God!

"Give much mone to mee who are hongre this long very. My nam Ali. My mother-father house is no."

Under the veranda, in the courtyard, some native drivers were stirring themselves in the oxcarts where they had slept the night. Others lay in the stalls, curled up beside their draft animals for warmth. Having backsheeshed Ali, who thriftily retrieved his begging letter for the benefit of future "jentill" fathers and mothers, we ascended our reloaded truck and rolled out into a blazing dawn, which struck across the Euphrates's yellow banks, kindling Kurdistan's treelessly stark mountain chain into a salmon-and-blue barrier of savage magnificence.

At the bridgehead we were sweetly invited to pay a second toll. We forthwith produced our receipt for last night's payment, and shocking was the fury of that good old man upon his discovering that a competitive collector had forestalled him in the perquisites which can be sweated from a government toll. He declared that it was an outrageous overcharge in backsheesh, and that he could have done the job, with entire satisfaction to all concerned, for a dollar less.

LOST AMONG THE KURDS

That day our car developed a leaky water feed, which necessitated much low-gear travel and a constant wayside searching for water. For the most part, we passengers trudged ahead through the wilderness, anxiously watching the sun, poised like a copper plaque on the shadowy mountain's rim, and wondered where we would sleep.

Now, Anatolian roads bewilderingly cross and recross each other; but it never occurred to us that we had missed the way until we found ourselves high up among the bowlders, in a cut that momentarily grew less like a road and more like a mountain trail. However, the dusk was almost on us, so there was nothing to do but to go ahead, trusting to encounter a village. Far behind us the car chugged lamely upward with the deliberation of a battle tank. Ahead the peaks were fading into mauve. Suddenly we caught the sound of rushing water and found ourselves looking down upon roof-tops.

The place—you couldn't even call it a village—was simply a collection of low, verandaed houses, built of mud-cemented stones, and so closely adjoining each other that their roofs constituted one continuous flat stretch. A stone staircase built against the side of each house led to its roof. The occasional gaps between the houses were blocked by 10-foot walls. The settlement formed an irregular circle about a dirt plaza—a kind of community barnyard, chaff-scattered, and containing a primitively built fountain, whose water gushed across a bed of cobblestones.

Photograph from Melville Chater

A COUNTRY KURD SEES HIS FIRST AUTOMOBILE TIRE

Due in large measure to the execrable condition of many roads in the Anatolian hinterland, automobiles are uncommon and some of the rural Kurds encountered by the author's party exhibited keen interest in the car and its accessories.

As we watched, a troop of black goats and fagot-laden donkeys, followed by boy tenders, ambled through an iron-studded gate, which was then barred for the night.

"It isn't a Turkish settlement," commented one of us, "for there's no minaret. And it is certainly too barbaric to be Armenian."

A BATTERY OF NEGATIVES

Then some yellow pariah dogs howled at us, and suddenly the flat roofs were alive with people—men in red turbans and women in baggy, red trousers, their faces swathed in white wrappings—the wild inhabitants of this mountain stronghold.

"Kurds!" we all said in a breath.

As it was too cold to pitch our camp in the open, we knocked at the main gate, hoping for hospitality.

"You have lost the road?" asked a rough voice from behind the door.

None of us spoke Kurdish, but between us we mustered up enough Turkish to make ourselves understood, the two tongues having a considerable number of words in common. Was there a house at our disposal? "No!" Was there a room? "No!" Was there any kind of shelter? "No!" Was there an *agha*, or headman, to whom we could speak? And again, "No!"

Photograph by Melville Chater

A WAYSIDE KHAN IN KURDISTAN

Modern motor cars may easily outrun the traditional *araba,* as long as roads are passable, gas can be had, and machinery behaves; but long-distance motor trips through much of the Near East still hold a high content of adventure (see, also, text, page 502).

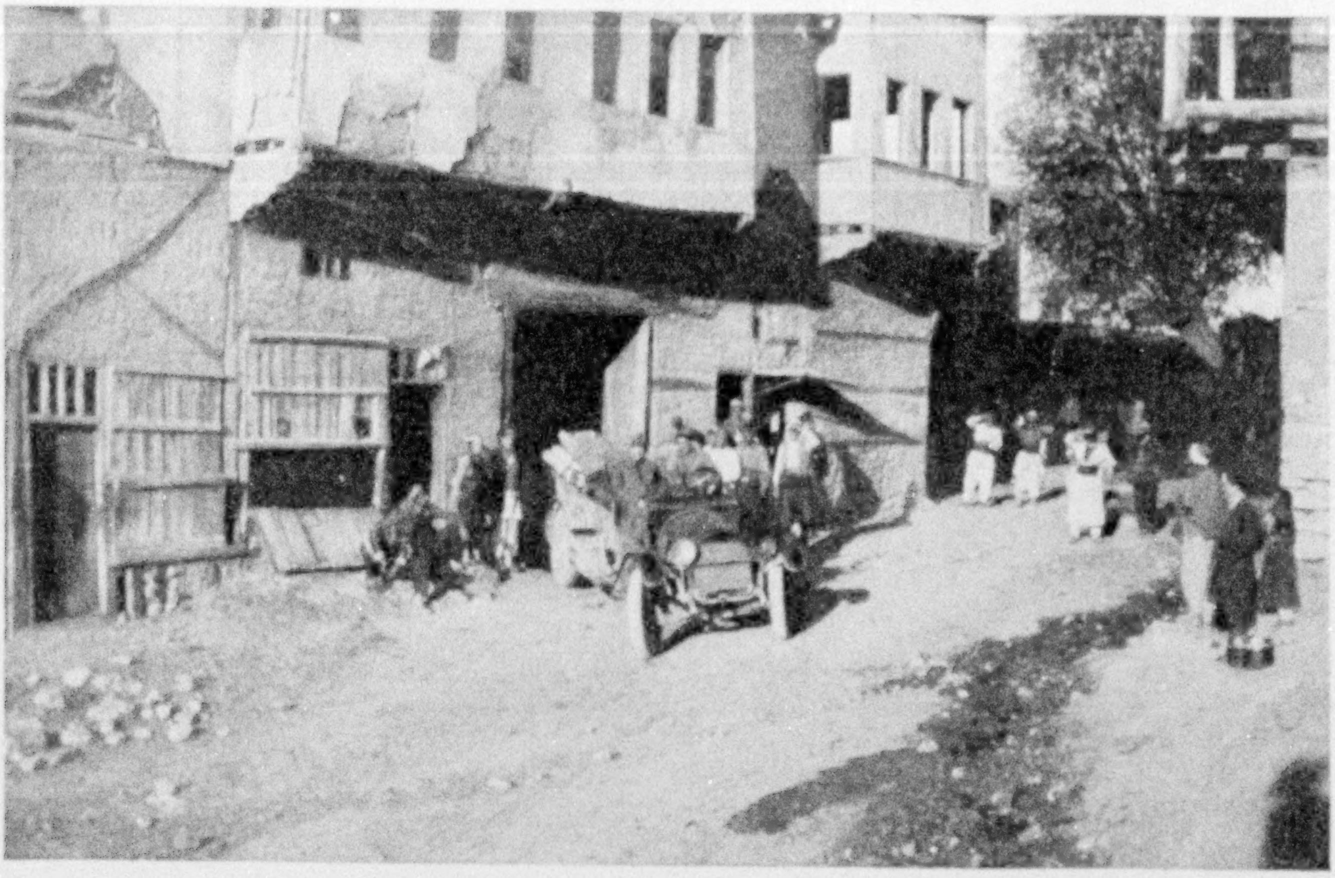
Ingratiatingly we sought to disarm this battery of negatives. But it was only the approaching chug-chug of our motor truck and the curiosity of Kurdish womankind that saved us. The door bolts shot back, and forth peered the ladies, all gesticulating and gutturally chattering at once.

Not one of them was veiled or exhibited any concern at thus appearing before the men of our party—this for the curious reason, as we afterward discovered, that we were Christians and not Mohammedans, before whom the Kizilbash woman invariably covers her face. Indeed, there exists such antipathy between Moslem and Kizilbash that should a Kizilbash return to his clan after sojourning in a Moslem community he is not permitted to enter the *tekheo* (worship house) or to participate in religious exercises until he has been "cleansed" by the *Dédé,* or religious head.

"FIRE BOTTLES" AND FLASHLIGHTS WIN THE KURDS

The community's few score men, women, and children crowded about the motor truck while we established the needed human touch by exhibiting it and all our strange belongings, to their enormous gratification. Our "fire bottles," as they christened the nickel containers which could pour out, still hot, coffee made that morning, distinctly captured the housewife vote. But what really won us the privilege of staying overnight was our pocket flashlights. For, after a Fourth-of-July display which gained the applause commonly accorded to skyrockets and Roman candles, we were ushered into the barnyardlike enclosure and shown a mud veranda, where, said the old *murshid* (tribal head), we could sleep. Then the population squatted on the adjoining roof-tops and awaited the performance.

Never had a barnstorming troupe a more spellbound audience than we as we enacted the mysteries of can-cutting, making soup out of black cubes, cooking over solid alcohol, and unfolding our camp bedsteads. The last—a delicate hint on the part of six dog-tired travelers—had the reverse effect of making every neck crane in anticipation of our disrobing. However, we simply stretched ourselves, fully dressed, on our ranged cots and turned off the footlights—I mean the lanterns. Then, and not till then, our audi-



Photograph by Melville Chater

THE KHAN IS PROBABLY THE OLDEST FORM OF HOTEL IN THE WORLD

These mud-walled compounds, sheltering pack animals in an open court, while travelers sleep in booths built around the inside of the walls, are the standard caravansaries of the Near East (see, also, text, page 490).

ence dispersed, doubtless agreeing that it was the best show that had ever visited the town (see, also, page 499).

THE KURDS SALUTE THE RISEN MOON

I occupied the cot nearest the sole access to our veranda, and, notwithstanding the Kurds' sacred law of hospitality, I privately determined to stay awake. It was hard work, and I was just dozing off when I heard certain suspicious rustlings that brought me to my feet. Again the rooftops were full of Kurds—crouching, mysteriously whispering figures. I was just beginning to wonder if they were there to witness a massacre of Americans, when the moon's pale disk freed itself from among the hills and swam into full view. Simultaneously the Kurds arose, making low bows and salaaming profoundly to the risen planet; then they descended their stone stairways and disappeared within doors for the night. What I had witnessed was a religious rite—one of the pagan practices of this strange people.

Who and what are the Kurds? Certainly they are an ancient race, since Assyrian inscriptions mention them under the name of Gardu, and Xenophon knew them as the Carduchi. With equal certainty it may be stated that, whether or no they are the descendants of the Medes, they are a far-wandered people — being found to-day in Persia, southern Russia, Anatolia, and Mesopotamia—and that in their wanderings they have gradually accumulated the mixed elements which compose their language and religion.

The one is sometimes close to Persian and is sometimes an old Persian dialect, mixed with Chaldean, Turkish, and Armenian words. The other may be orthodox Mohammedanism, as in the case of the Moslem Kurds, or it may be a mixture of Christianity, nature-worship and unorthodox Mohammedanism, as in the case of our Kizilbash hosts. The Moslem Kurd worshiper simply goes in for dervishlike whirling and howling, whereby he superinduces an ecstatic fit, in which he falls to the ground screaming superlative praises of his tribal sheik.

But the Kizilbash goes in for all sorts of things, from primitive forms of baptism and communion to a belief in guard-

Photograph by Donald Horsford

PRANKY FATE! ONE WOMAN SHE GARBS IN TATTERS, ANOTHER IN ALL THE GLORIES OF A FASHION SHOW

This Kurdish country woman, despite rags and poverty, clings to her *yashmak*, symbol of woman's seclusion in the Moslem world; but now modern women of the Moslem cities are putting aside the veil.

ian angels and a veneration of the sun and moon. He observes the Syro-Chaldean fast of Khudur Ilias; he wails during the Persian passion-week, which commemorates the deaths of Hasan and Hosain. And, believing that Christ was crucified on a Thursday, he holds that evening sacred.

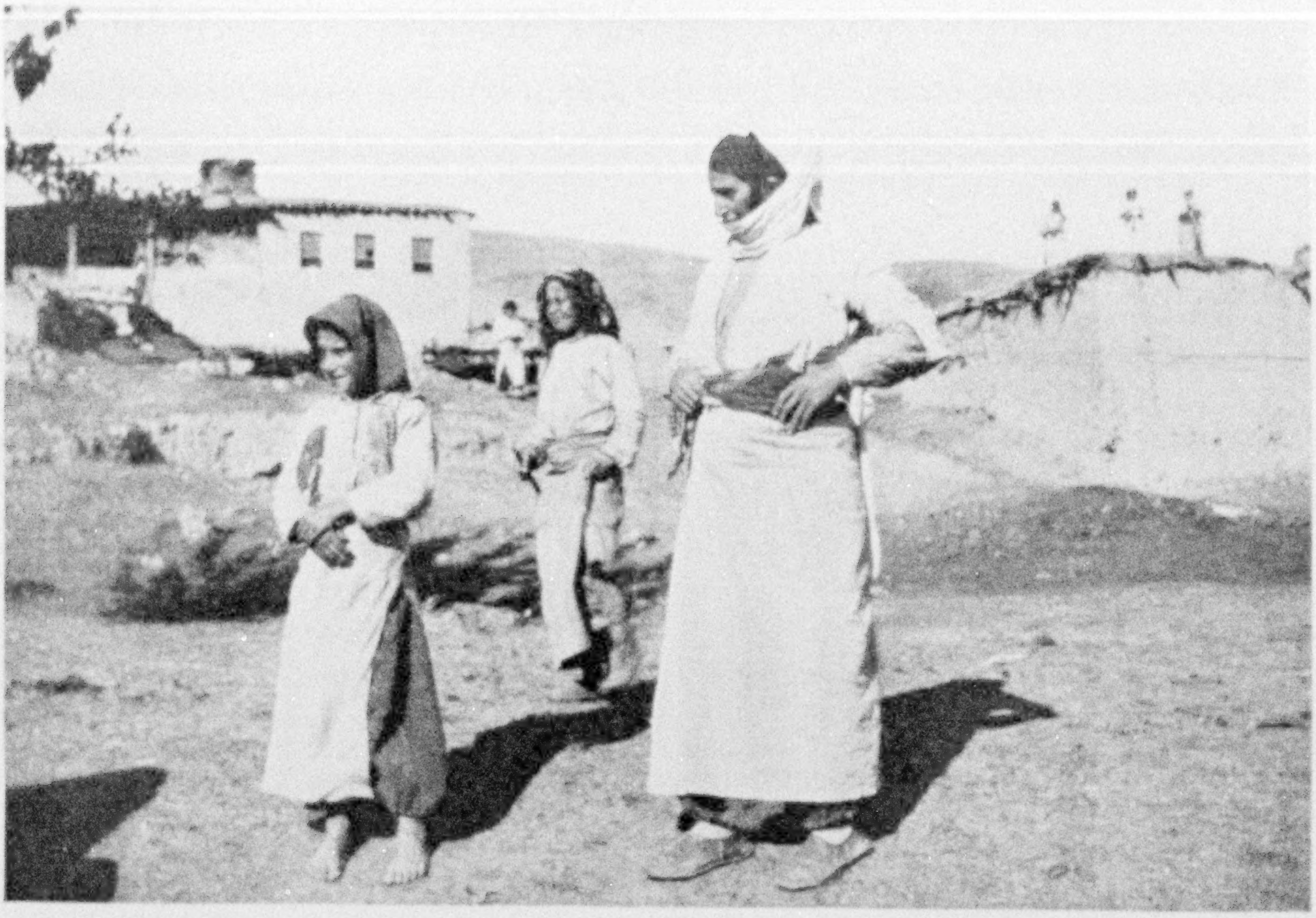
His Dédé, or religious head, possesses a holy manuscript, called Booirookh, from which he is taught orally that the eternal, invisible God is as "three lights in one lamp"; that Jesus and Mahdi will come again to judge the world; that evildoers are reincarnated as wild animals.

Monogamy is his rule; and, while he may take a second wife if the first is barren, he must not disown the latter. Though he may marry outside the Kizilbash pale, he never permits his daughter to do so. The young lady, however, has free choice among her Kizilbash suitors, and at the outset of the marriage ceremony she is thrice asked if she wishes to change her mind. If she survives this somewhat unsettling ordeal, vows are plighted and apples are cast on her head as a sign of marital fruitfulness.

DAYLIGHT SAVING PRACTICED BY THE KIZILBASH

Our Kizilbash hosts were up and at their tasks before the stars paled. Doubtless their Median ancestors practiced the same daylight-saving scheme when Babylon was an empire and Europe was No Man's Land. As the sun rose, each man, woman, and child turned eastward, bowing to it a polite good-morning, then resumed the day's routine. We Americans crawled lamely out of bed, washed at the public fountain, then visited some of the surrounding houses.

In these, the floor served as common bed, table, and chair for the entire family. The babies lay in wooden cradles, wearing square, red caps, and tightly packed in the fine sand which filled their swaddling clothes. Groups squatting over their breakfast of goat's milk and bread performed "grace" by making the sign of the cross and kissing their hands. Housewives were putting bread to bake, first stamping a

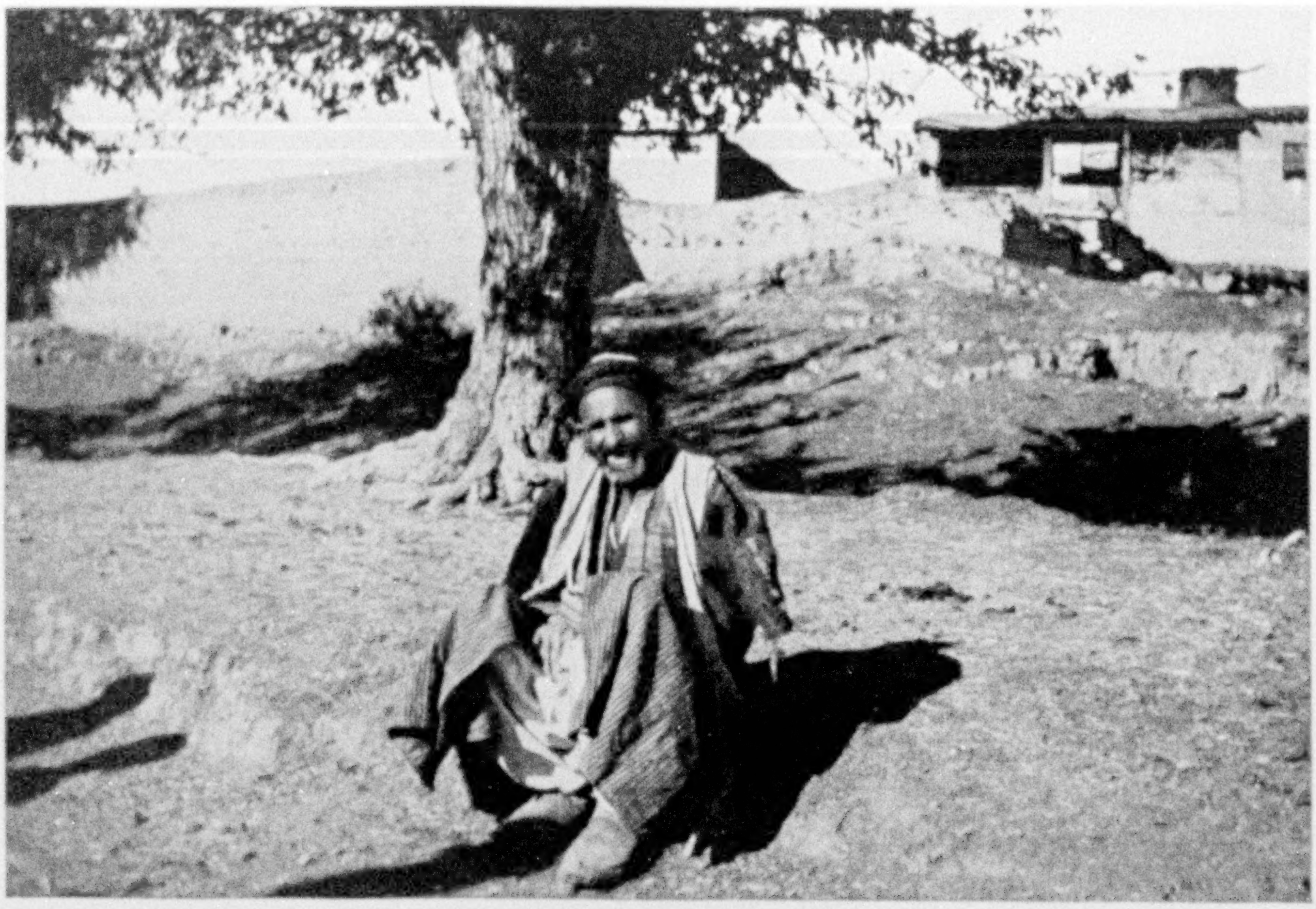


STANDING AND STARING—A COMMON DIVERSION THROUGHOUT THE NEAR EAST

Photographs by Melville Chater

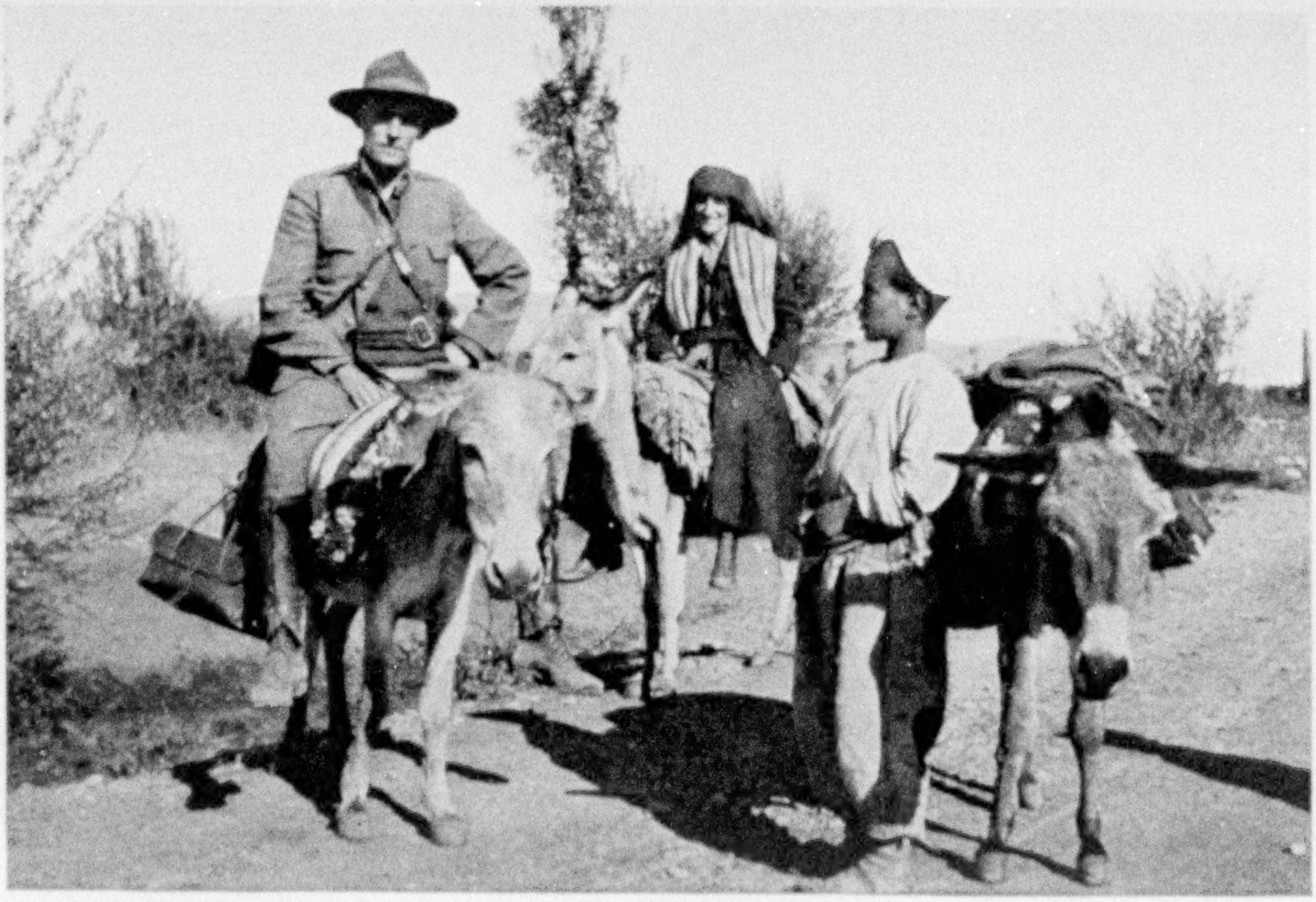
ON THIS VERANDA THE AUTHOR'S PARTY SPENT A NIGHT

The privilege of being allowed to sleep in this hospice was purchased with a display of flashlights (see text, page 496).



Photograph by Melville Chater

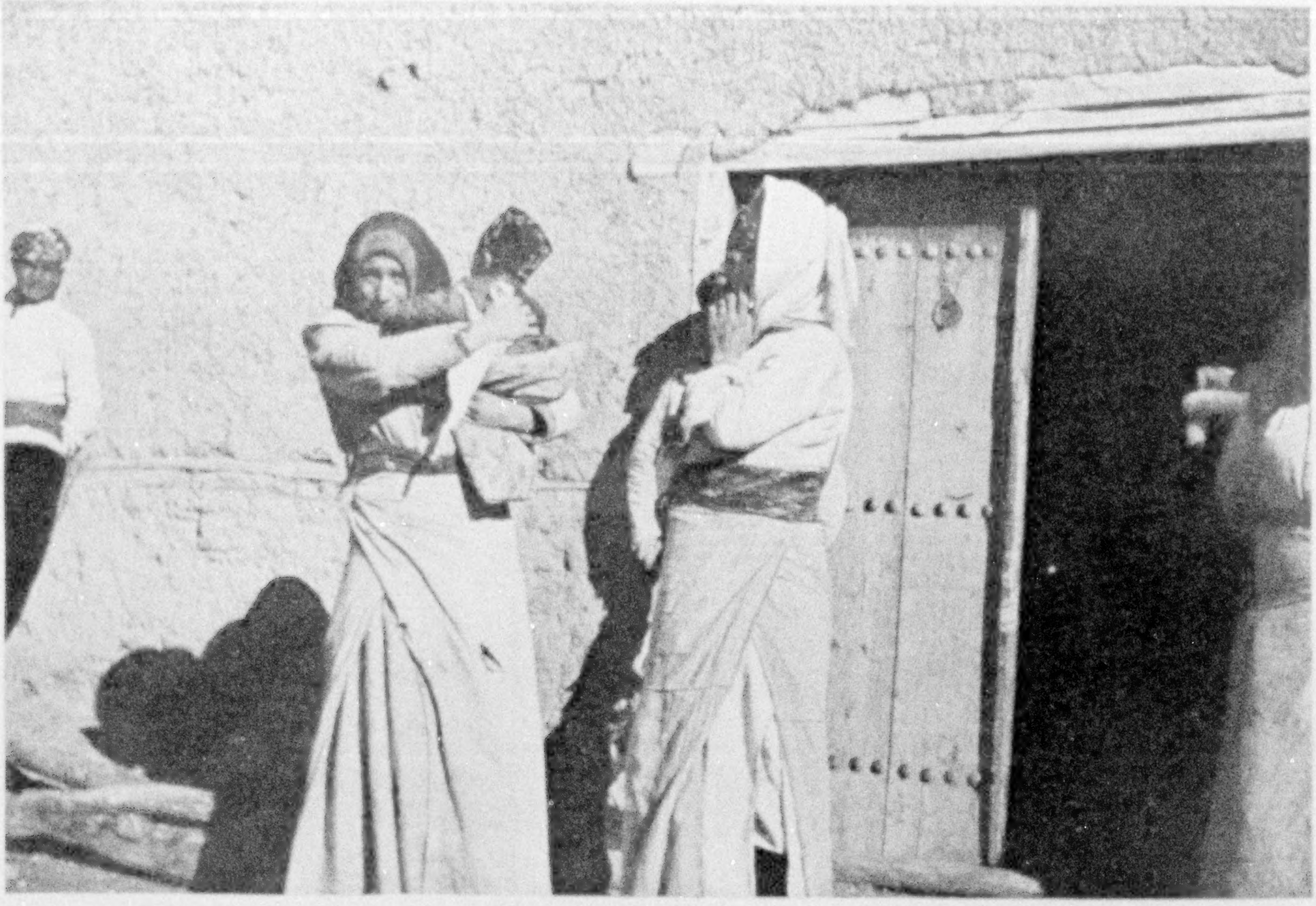
HE RULES A CLAN OF KIZILBASH



Photograph from Melville Chater

A KURDISH EXPRESS TRAIN READY TO DEPART

Standing at the author's left is one of the two young "donkey persuaders" of the retinue. His services were obtained, along with those of the three mounts, from the old headman in whose village the travelers rested.



Photograph by Melville Chater

A KIZILBASH KIDDY TURNS HIS BACK ON THE CAMERA

cross on the dough. Children were rocking goatskins, filled with milk, back and forth on the floor—churning in its most primitive form. In the headman's house we discovered two Pullmanlike berths, outfitted with blankets, intended for distinguished guests of the clan.

SAVAGE COQUETRY MARKS KURDISH WOMEN

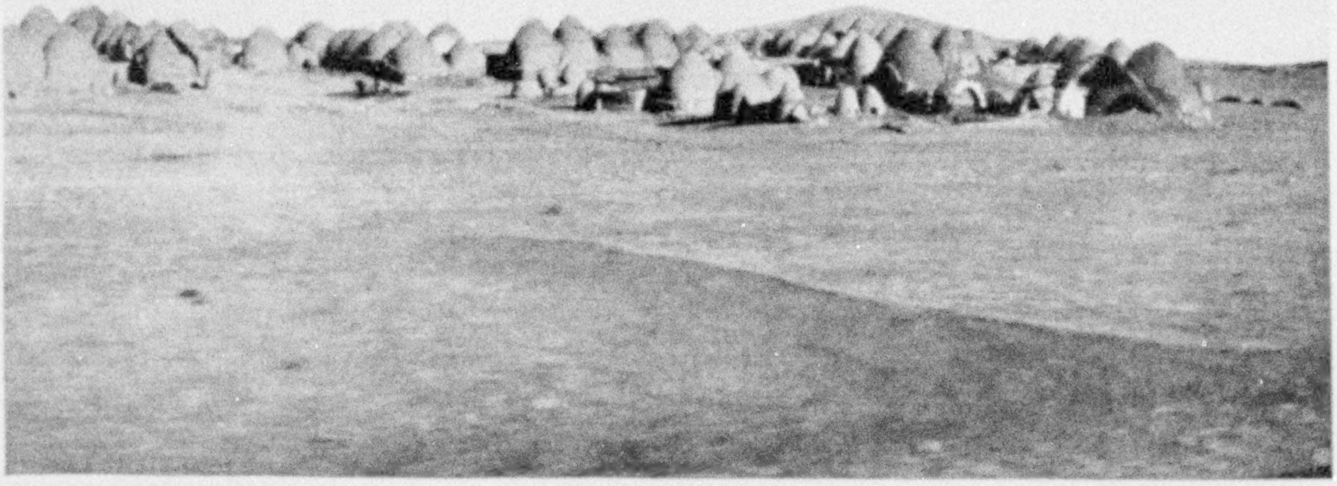
The women water-carriers, supporting great copper vessels on their heads, stalked along barefoot with a tigress's lithe grace. As one watched their deliberate step—a graceful toeing of the earth before the heel touched—the flatfooted pace of the civilized shoe-wearer seemed ugly in comparison. The Turkish woman's baglike garments are obviously designed to conceal her figure. Contrariwise, the Kurdish woman, with her slit skirt, which reveals the Turkey-red trousers, tight at the ankle—with her chin-muffling burnoose, and the broad sash, tightly drawn so as to accentuate her body's mold—could give Fifth Avenue or Rue de Rivoli lessons in coquettish dressmaking.

But it is a wildcat kind of coquetry, which is furthered in the dark, aquiline face, stamped with racial age and pride—in the black eyes asmolder with savage fires. Truly, "she walks in beauty like the night," an Amazon in her untamed vigor.

The old murshid sought out our party, inquiring if we intended to continue our journey that day. And upon our replying "Yes," he glanced up at the sun—it was just 10 o'clock—and said with the kindly warning of one who had arisen by starlight, "Then you had better get started, as evening is approaching." So we packed up, noticing the absence of but one article—a flashlight with which the murshid's grandson had been affectionately toying ever since our arrival. We spoke our mind, and the old rascal, adopting a most injured air, replied: "My grandson has *not* stolen the fire-gun. He has merely borrowed it for use on a short journey and will hand it back when he returns."

THE KURDS ARE DEFT "BORROWERS"

In order to lighten the motor truck, three of us hired donkeys from the murshid, the price including two donkey-persuaders—a pair of small boys—who would accompany us to Malatia. I was preparing to cut a stick from an adjoining tree, when horrified shrieks arose from



Photograph by Melville Chater

KURD MUD TOWNS OF IRAQ SUGGEST A CROSS BETWEEN BIG BEEHIVES AND MEXICAN OUTDOOR OVENS

The construction and design of most Kurdish houses are extremely simple. Some are made entirely of mud, while even the more pretentious ones use no other material except for the beams supporting the roof. If a Kurd is dissatisfied with his home he simply moves the beams and builds elsewhere.

the women, and the murshid bustled up to inform me that this was a sacred tree, not to be touched, much less cut. He then made the tree a profound obeisance of apology, and we rode off, stared at to the last by the assembled women, several of whom now wore newly acquired ornaments consisting of American salt-spoons, string-suspended about their necks. The Kurds are, indeed, very deft "borrowers."

THE ANATOLIAN VS. THE AMERICAN "EYE"

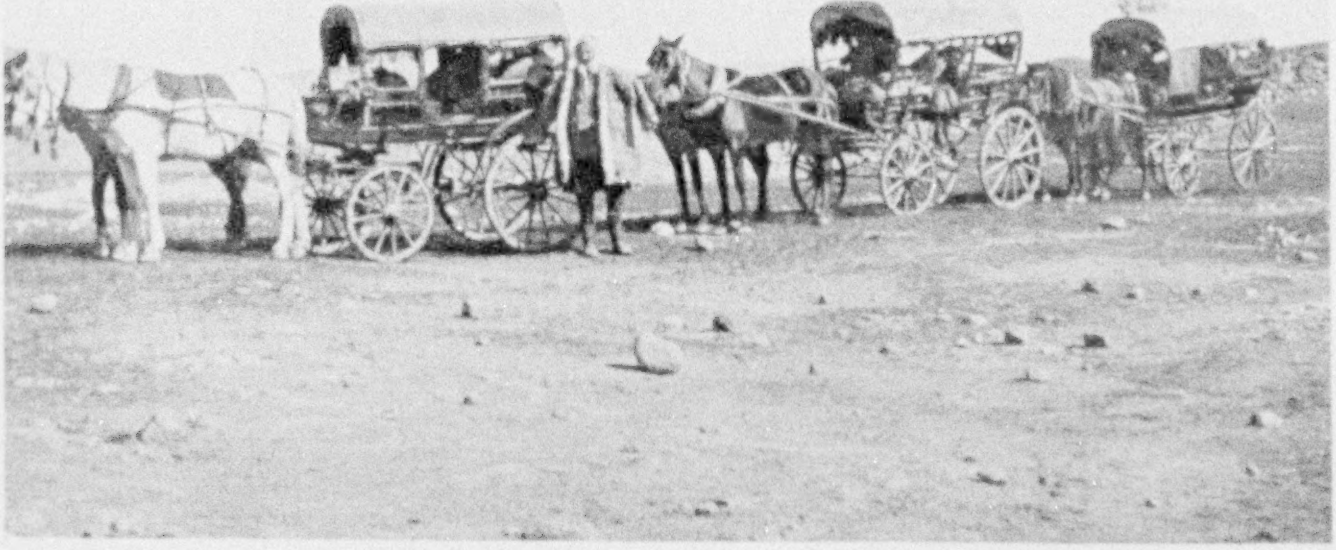
For seventeen miles little Hadji and Djemal trotted along beside us, inspiring our steeds with stick-pokings and with guttural, seasick sounds. The main road once reached, the country slowly widened into magnificent grainfields, bounded by low, blue hills which encompassed the horizon like a haze-hung sea. Rough Kurdistan melted into a prospect of pastoral tranquillity where oxen leisurely dragged Anatolia's "crooked-stick" plow, and the blue distance was pierced by the white slenderness of village minarets.

Toward sunset we were joined by donkey-mounted peasants returning from the fields, our company augmenting to a veritable cavalcade as we neared Malatia's poplar-surrounded roofs. Each Turk sat sedately astride, swinging his legs to keep the slumbrous donkey in motion, while behind him his black-veiled hanum marched afoot, making at us strangers what we called the "Anatolian eye." This consists in adjusting the veil so as to expose one lustrous orb, which glows coquettishly forth at passers-by.

Not to be outdone, the two girls of our party began veiling themselves from passing Turks and making the American eye. To one old patriarch who reined his donkey alongside mine, I undertook to explain that these ladies were my hanums. But, not to be taken in, he shook his head, remarking sagely, "If they were they would not be riding alongside the effendi, but walking modestly behind him in a wife's proper place."

THE ANATOLIAN "PRAIRIE SCHOONER" IS SLOW BUT SURE

At Malatia, having definitely abandoned the broken-down truck, we hired *arabas*



Photograph by Melville Chater

WITH RELAYS OF HORSES, THESE ROUGH BUT STOUT WAGONS MAKE INCREDIBLY LONG JOURNEYS IN A DAY

Sheltered from rain and sun, travelers sit or lie on their baggage piled in the beds of these 4-wheeled arabas (see text, page below).

for the 150 miles that lay between us and the next town, Sivas. The araba, or Anatolian prairie schooner, is much slower, yet much surer than any motor truck in that car-killing land which American chauffeurs call "the cemetery of gas wagons."

At first sight the araba, with its driver's curtained seat in front, and the six feet of bare flooring behind him, looks like a harsh discrimination against the passenger. But the experienced araba traveler knows just how to bestow his blankets and baggage so that he may half recline thereon, as upon a divan. Completely secluded from the vulgar gaze by curtains, which are lined with pink, flowered muslin and hung with varicolored tassels, he rolls along with a luxurious sense of kinship to King Solomon or the Queen of Sheba.

Our first day's march took us across the Tokhma River and through the eighteen miles of fertile steppe known as the Malatia plain. Its vast emptiness was broken only by the occasional appearance of a camel train, loaded with Kemalist ammunition boxes, or the passing glimpse of some bleached skeleton, a relic of 1916's massacres.

A half-Kurdish village yielded us the usual troglodyte accommodations of a mud khan, where we slept until our tyrannical driver warned us that the stars were paling. So we breakfasted by candlelight and turned out in the chilly dawn to remake our "divans" for the day's journey of 40 miles.

POTS SMASHED FOR GOOD LUCK

Next day we did 35 miles, passing through a succession of villages which were meagerly strung out across the plain. In one of these a wedding had just taken place, and the bridegroom was leading his bride down the street to their new home. Women were smashing earthenware vessels in the couple's path for good luck. "You can't make a household without breaking pots," seems to be the Anatolian equivalent to the French proverb anent omelettes and eggs.

But a stranger ceremony was enacted as the couple neared their doorstep, where waited a tethered lamb and a man with a big knife. One slash, and the creature's cut throat weltered forth blood, through which bride and bridegroom

Photograph by Melville Chater

THE PEAK OF THIS KURD MINARET IS ROOFED WITH OLD AMERICAN TIN CANS

passed across the threshold. It was the ancient scapegoat rite, still practiced among the faithful. When the first Kemalist official entered Constantinople and crossed Galata Bridge to Stamboul, the cobbles ran red with the blood of animal sacrifice, spilled to inaugurate the Nationalist cause.

We had a week of it—of pitching camp at dusk, and of striking camp by starlight—of day-long travel, and of canned-goods rations, devoured among the stern remoteness of mountain trails. And always the air grew sharper, and the *tezek* (dung fuel) became less warming, and the lead-gray skies menaced us with snows. This last fact we pointed out to our driver repeatedly, commanding him to hasten—an order which he repeatedly ignored with the stolidity of an obelisk.

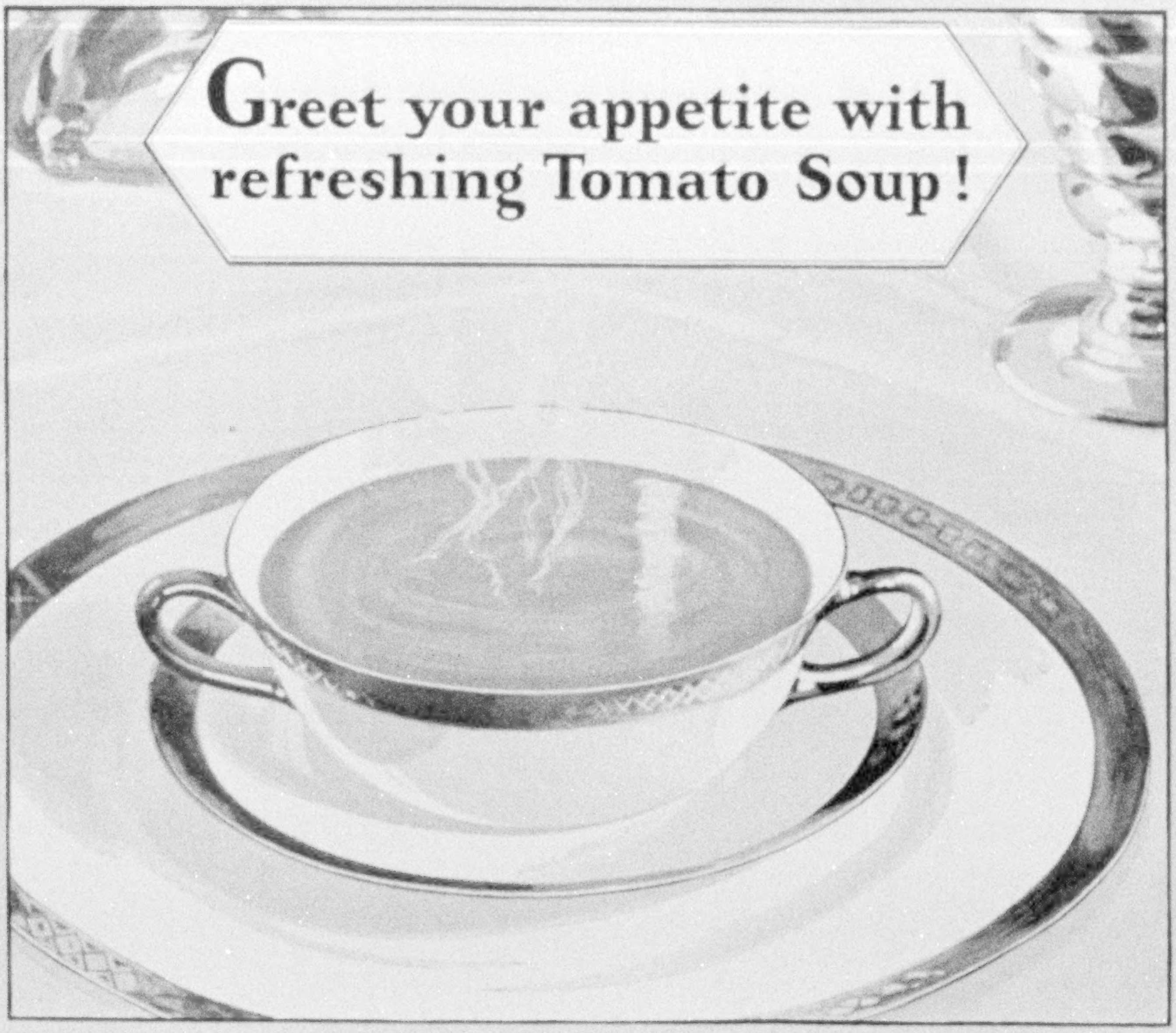
HABIT RIDES THE ANATOLIAN DRIVER

The Anatolian *arabaji* is a law unto himself and his passengers. To an American traveler it comes as a shock to find that he is practically under the orders of his native driver. Knowing the country well, the latter refuses to swerve one jot from his set way of doing things. Whether one has preferences as to slow or rapid travel, or preconceptions as to when to get up and when to have lunch, it's all the same to him. He will water his team, or trot or walk it, at the identical spots, year after year. At such an hour one must start, at such a spot there will be a halt for lunch, and at such a khan one must sleep—thus saith the arabaji.

He is fairly habit-ridden. In the morning he will wear his Turkish slippers, and in the afternoon he will sit on his bare, tucked-up feet. Whenever he sights a town he will indulge himself by humming a Turkish love song. Even in the matter of his shaggy, woolen mittens, one *must* be flame-red and the other *must* be apple-green; he will have it no other way.

Two more nights of bitter cold, when we chopped up our last packing case to make fires on the dirt floors of successive, cavelike khans; two more days' travel across wild, verdigris-hued mountains, whose very streams ran green from virgin copper. Then down from the Taurus Range rushed the snow-laden winds, blocking the ways against horse and man, until springtime. And, because we were out of it, we cheered. For, yonder in the valley lay snow-sheeted Sivas, where awaited hospitality—food, fire, civilized faces, and, best of all, motor transport which would speed us onward to that rim of the outer world, the Black Sea!

Greet your appetite with refreshing Tomato Soup!



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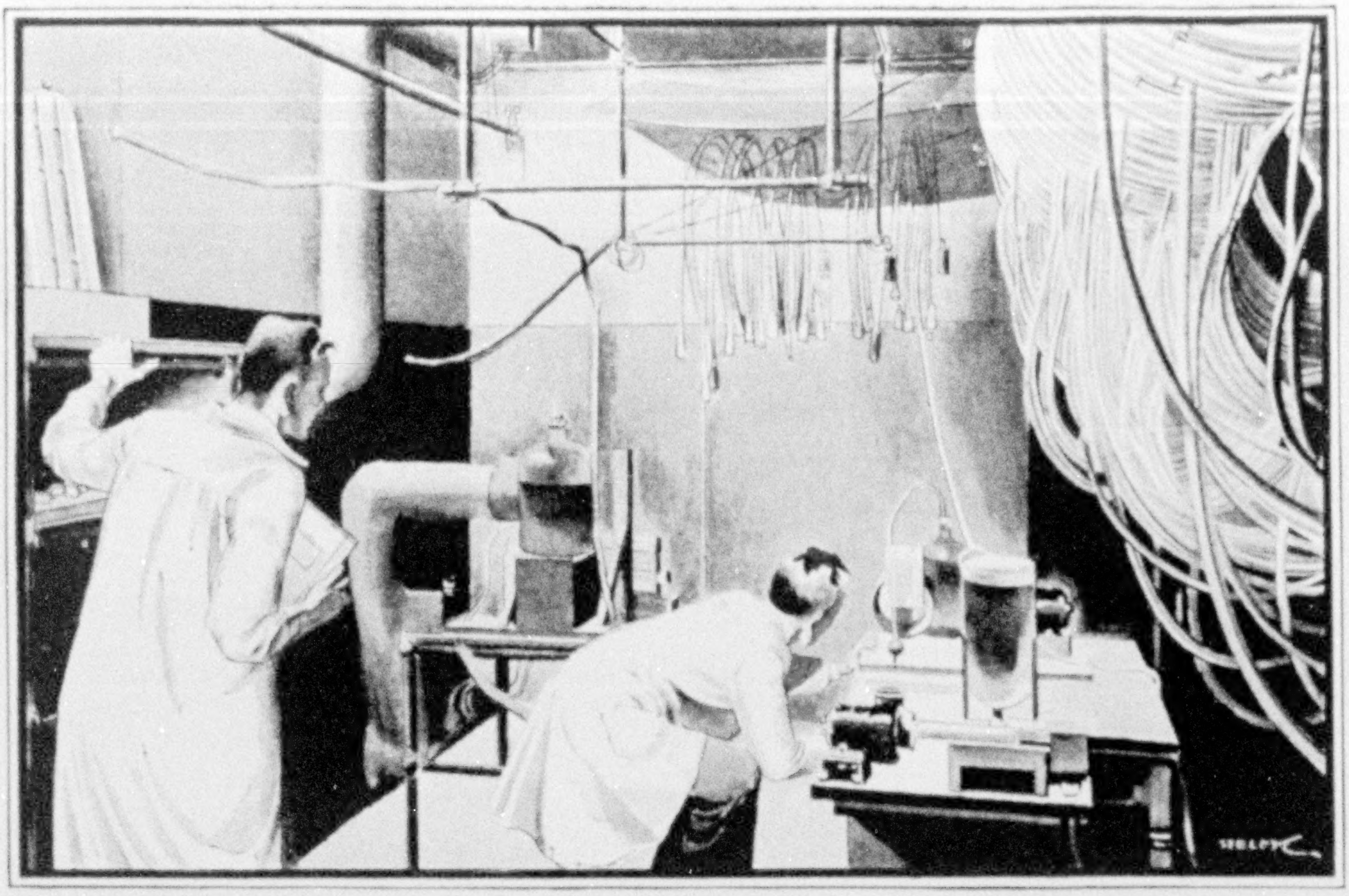

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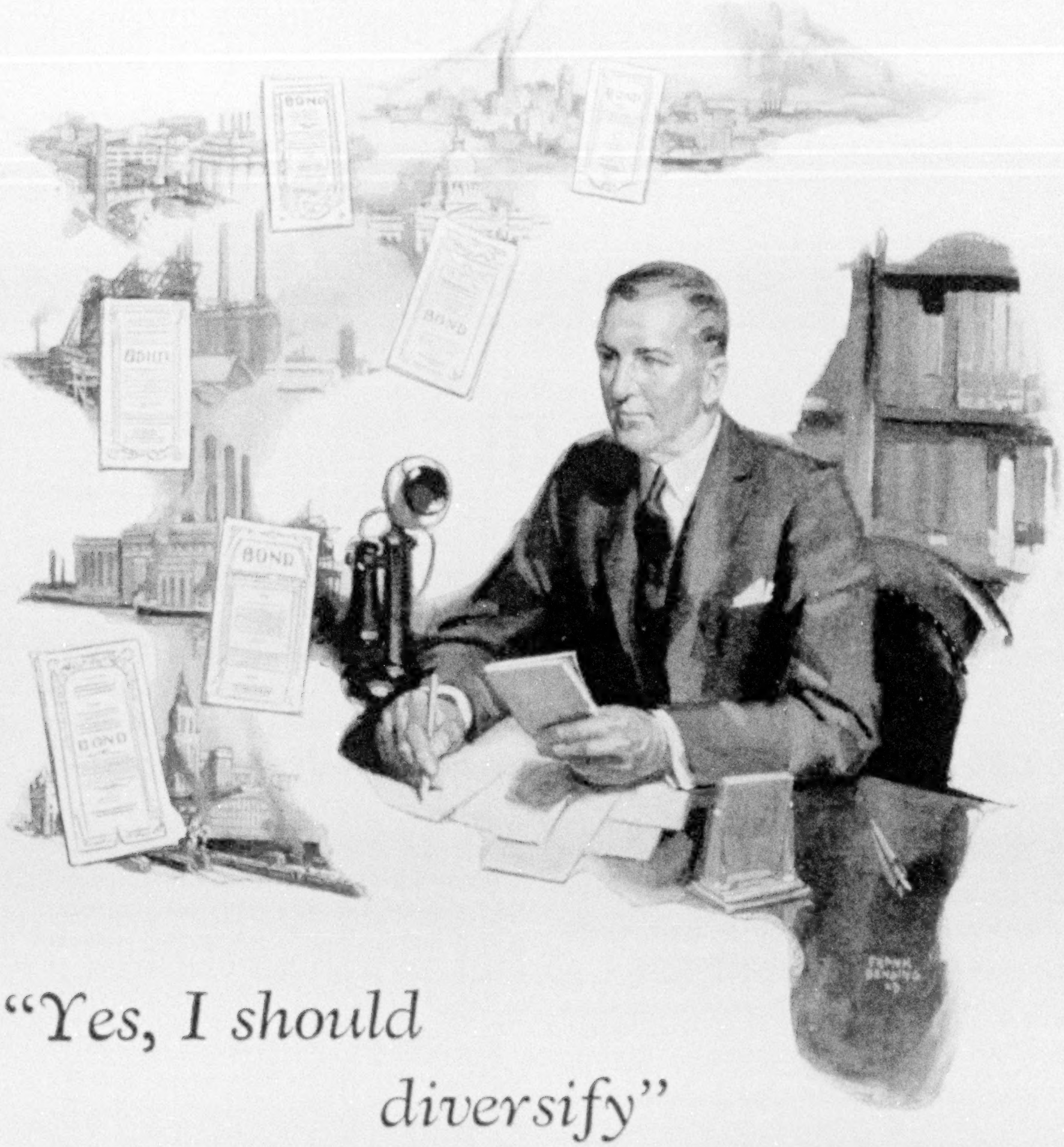

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IN MAYWOOD, ILLINOIS, *the water is 350 hard. You should lather longer if you are in a hard water region to help your Gillette Blade to do its usual smooth, sure job.*

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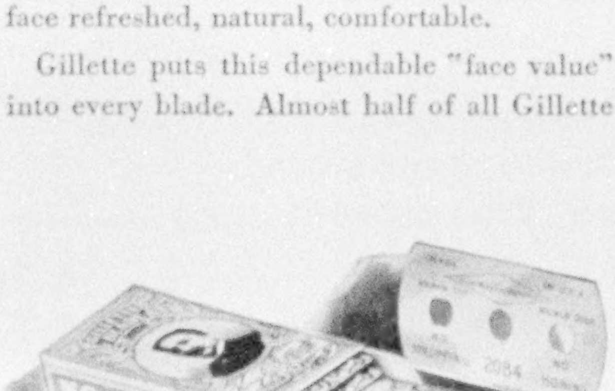

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* * *

These few words tell almost all there is to the Chrysler story—or give, at any rate, the root-reason why Chrysler looms large on the motor car horizon. Chrysler is presenting at this moment a group of cars sparkling and shining with newness of performance and appearance—cars which have again captivated their public.

These brilliant new Chrysler cars have been in process of creation for two years—they will exert their influence upon the design of all other motor cars for several years to come.

* * *

Chrysler has never halted or hesitated, because Chrysler is free and has no obligations to anyone but its own public—no limit except the limit of its own creative powers, its own energy and enthusiasm, its own faith in the boundless resources of the nation—its own conviction that the world, the age and the day in which we live are quite literally and absolutely *all right.*

Chrysler quite frankly confesses its intention to try to surpass other cars and other manufacturers—quite frankly admits an enthusiastic ambition for continued leadership in value giving—quite frankly intends to leave nothing undone to earn and deserve and hold the greatest motor car public in all the world.

* * *

This, it seems to the Chrysler management, is the urgent need of every manufacturing institution which aspires to satisfy a swift-moving public—to realize that it *does* move, that yesterday is dead, that laurels wither, that today is gloriously alive, that tomorrow calls clamorously for greater and greater endeavor.

GASOLINE + ETHYL = *high compression performance*

YOU are hearing much about "high compression"... "high compression engines" ... "high compression fuel"... "high compression performance."

"What," a great many car owners are asking, "does 'high compression' mean to me?" Here is a simple explanation:

Each cylinder of your engine may be likened to a muzzle-loading gun. The cylinder is the gun; the piston is the bullet; and the mixture of gasoline and air is the powder charge.

The tighter you pack the powder charge in the gun before firing, the greater the force to the bullet. Similarly, the tighter you squeeze—or compress—gas vapor and air in the combustion chamber before ignition, the greater the force of the piston's stroke. In other words, the higher the compression the greater the power.

Higher compression in a gasoline engine is obtained by decreasing the size of the combustion chamber—either by mechanical design or by carbon formation.

* * * *

Up to the advent of Ethyl Gasoline, the compression of automobile engines was limited by the compression limits of gasoline. For gasoline is not a perfect fuel. It explodes too soon ("knocks") and loses power when squeezed beyond a certain point.

That is why General Motors Research Laboratories developed ETHYL fluid, a compound which controls the combustion rate of gasoline so that as engine compression is raised the "knock" is eliminated. And that is why oil companies are mixing ETHYL fluid with gasoline to form *Ethyl Gasoline*—the standard high compression fuel.

* * * *

Within the last year, car manufacturers have been able to produce new models of higher compression and greater power. *But the most immediate benefits of Ethyl Gasoline are found among the millions of owners of cars of ordinary compression, because with its use in such cars carbon becomes an asset.*

Ride with ETHYL. See what a great difference it makes on hills and in traffic. No "knocking." Less shifting. Faster pickup. Stop at an ETHYL pump today—it bears the emblem shown at the left.

ETHYL
BRAND OF
ANTI-KNOCK
COMPOUND
ETHYL GASOLINE
CORPORATION
Knocks out that knock

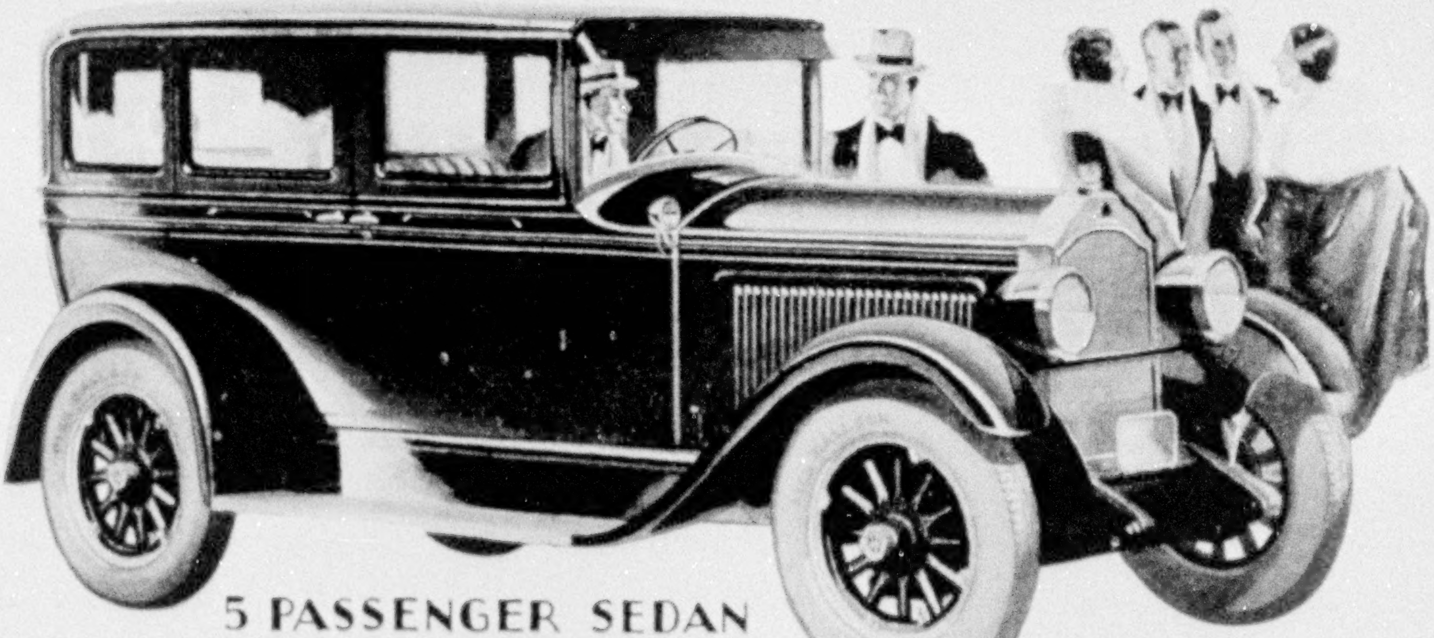
ETHYL GASOLINE CORPORATION, 25 Broadway, New York City. 56 Church Street, Toronto, Ont., Can.

ETHYL GASOLINE

THE YEAR'S OUTSTANDING VALUE

BEAUTIFUL STANDARD SIX NOTABLE FOR WILLYS-KNIGHT'S TYPICAL SMOOTHNESS AND POWER

Experienced motorists who know the smoothness, flashing activity, silent power and rugged stamina of the *patented* double sleeve-valve engine are quick to acknowledge the Willys-Knight Standard Six as the year's greatest value. ¶ At the lowest price in history, Willys-Knight's beauty of design and superiority of performance are now enjoyed by thousands of new owners. ¶ The sweeping success of the Standard Six has made 1928 Willys-Knight's biggest year. Quality was never as high — prices were never as low — sales were never as great. ¶ Most emphatically, it will be well worth your while to give the Standard Six your closest inspection. And the more exacting your scrutiny, the greater will be your appreciation that this beautiful car possesses everything that wins you to a fine Six — from the fundamentals of design and construction to the smallest details of appointment. ¶ A demonstration of the Standard Six reveals the ease of control, quick starting, comfortable riding and sustained brilliance which have won the praise of more than 325,000 enthusiastic Willys-Knight owners. ¶ And years of service — with remarkable freedom from carbon troubles and repairs — will bring you a new conception of the economy with which a truly fine car may be operated.



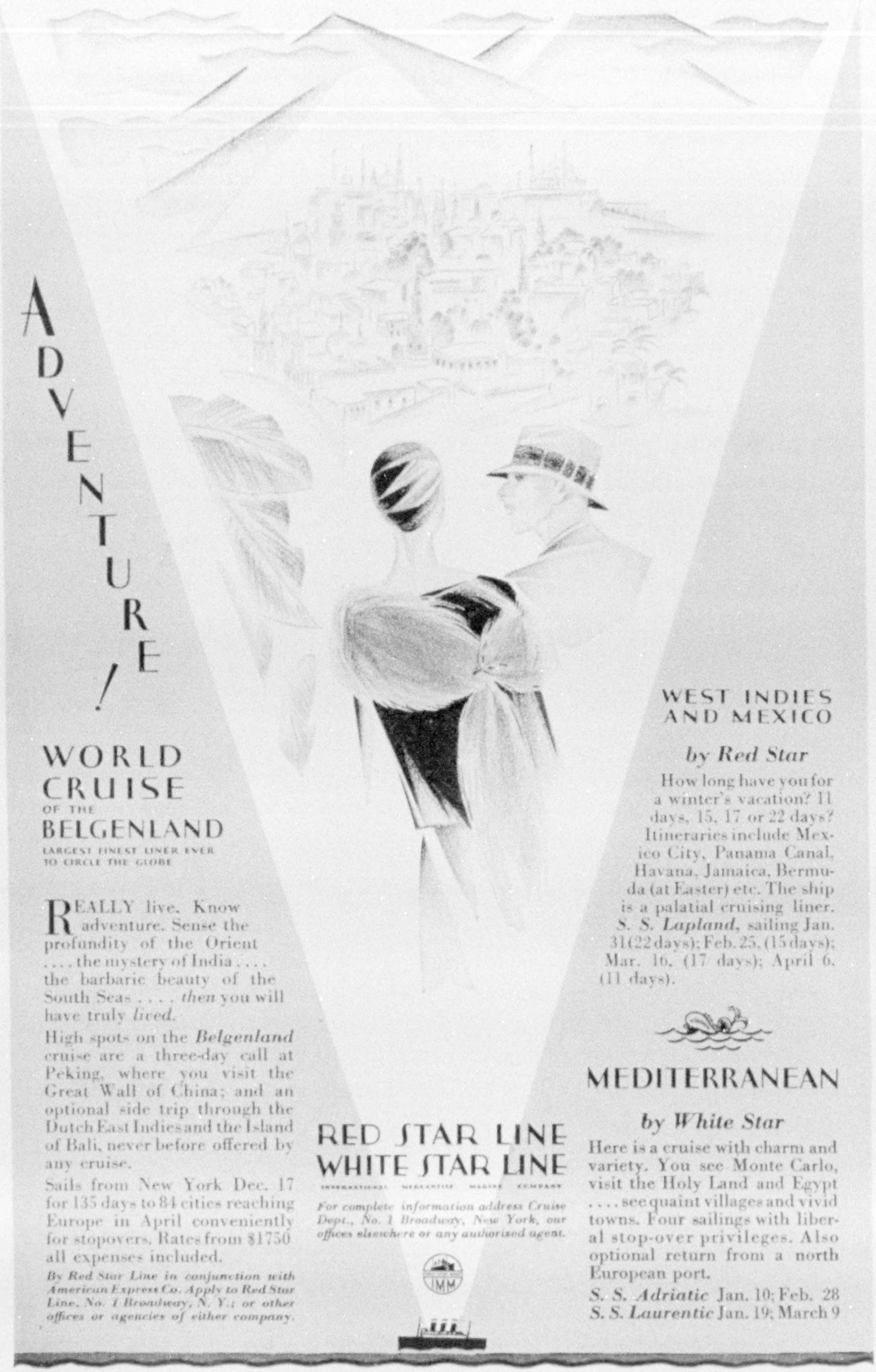
5 PASSENGER SEDAN

$1095

COACH . . .	$995
TOURING	995
ROADSTER	995
COUPE . . .	1045

Prices f. o. b. Toledo, Ohio, and specifications subject to change without notice. Willys-Overland, Inc., Toledo, Ohio. Willys-Overland Sales Company, Ltd., Toronto, Canada.

WILLYS · KNIGHT SIX



ADVENTURE!

WORLD CRUISE
OF THE
BELGENLAND

LARGEST FINEST LINER EVER TO CIRCLE THE GLOBE

REALLY live. Know adventure. Sense the profundity of the Orient . . . . the mystery of India . . . . the barbaric beauty of the South Seas . . . . *then* you will have truly *lived.*

High spots on the *Belgenland* cruise are a three-day call at Peking, where you visit the Great Wall of China; and an optional side trip through the Dutch East Indies and the Island of Bali, never before offered by any cruise.

Sails from New York Dec. 17 for 135 days to 84 cities reaching Europe in April conveniently for stopovers. Rates from $1750 all expenses included.

By Red Star Line in conjunction with American Express Co. Apply to Red Star Line, No. 1 Broadway, N. Y.; or other offices or agencies of either company.

WEST INDIES AND MEXICO

by Red Star

How long have you for a winter's vacation? 11 days, 15, 17 or 22 days? Itineraries include Mexico City, Panama Canal, Havana, Jamaica, Bermuda (at Easter) etc. The ship is a palatial cruising liner. *S. S. Lapland,* sailing Jan. 31 (22 days); Feb. 25, (15 days); Mar. 16, (17 days); April 6, (11 days).

MEDITERRANEAN

by White Star

Here is a cruise with charm and variety. You see Monte Carlo, visit the Holy Land and Egypt . . . . see quaint villages and vivid towns. Four sailings with liberal stop-over privileges. Also optional return from a north European port.

S. S. Adriatic Jan. 10; Feb. 28
S. S. Laurentic Jan. 19; March 9

RED STAR LINE
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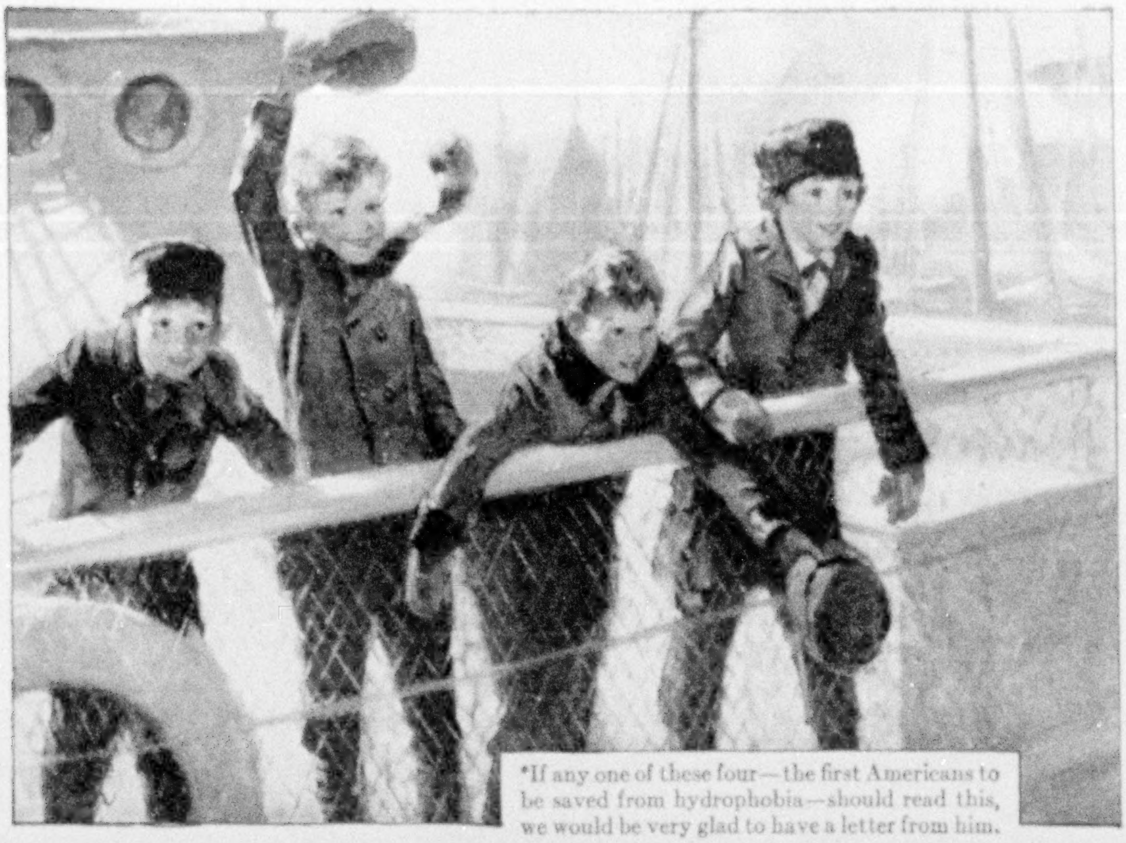
INTERNATIONAL MERCANTILE MARINE COMPANY

For complete information address Cruise Dept., No. 1 Broadway, New York, our offices elsewhere or any authorized agent.

IMM

BUILDING
THE FORTRESSES OF
HEALTH

One of a series of messages by Parke, Davis & Company, telling how the worker in medical science, your physician, and the maker of medicines are surrounding you with stronger health defenses year by year.



*If any one of these four—the first Americans to be saved from hydrophobia—should read this, we would be very glad to have a letter from him.

3,000 miles to save four young lives

One day in 1885 a mad dog rushed upon a group of laughing American children—and left four little lads* facing practically certain death from hydrophobia.

Scarcely a month before, Louis Pasteur, the famous French scientist, had demonstrated a method for preventing hydrophobia. Already he had saved several lives.

But Paris was 3,000 miles away—a twelve-day voyage in 1885. Was there time to save these four boys?

"Send the children at once!"

When their doctors cabled for hope, Pasteur replied: "*Envoyez les enfants toute de suite*"—(send the children at once).

And so Patsy and Eddie and Austin and Willy sailed for the Old World. Reaching Havre, they were rushed to Paris and the laboratory of Pasteur. Each day for ten days they were given gradually increased amounts of the life-saving vaccine. The disease never developed.

Safe home at last, they never forgot the simple, kindly man whom they had learned to call "Papa Pasteur."

The fortress against hydrophobia (rabies)

Today preventive treatment against hydrophobia can be given without delay by any qualified physician right in the patient's own home.

If your child is bitten by a dog, notify your doctor at once. And, if possible, have the dog securely locked up—alive—where it can be observed for symptoms of rabies.

Your doctor will tell you that antirabic vaccine as prepared in the Parke-Davis laboratories is so effective and so simple to administer that when used promptly there need be no cause for alarm.

PARKE, DAVIS & CO.

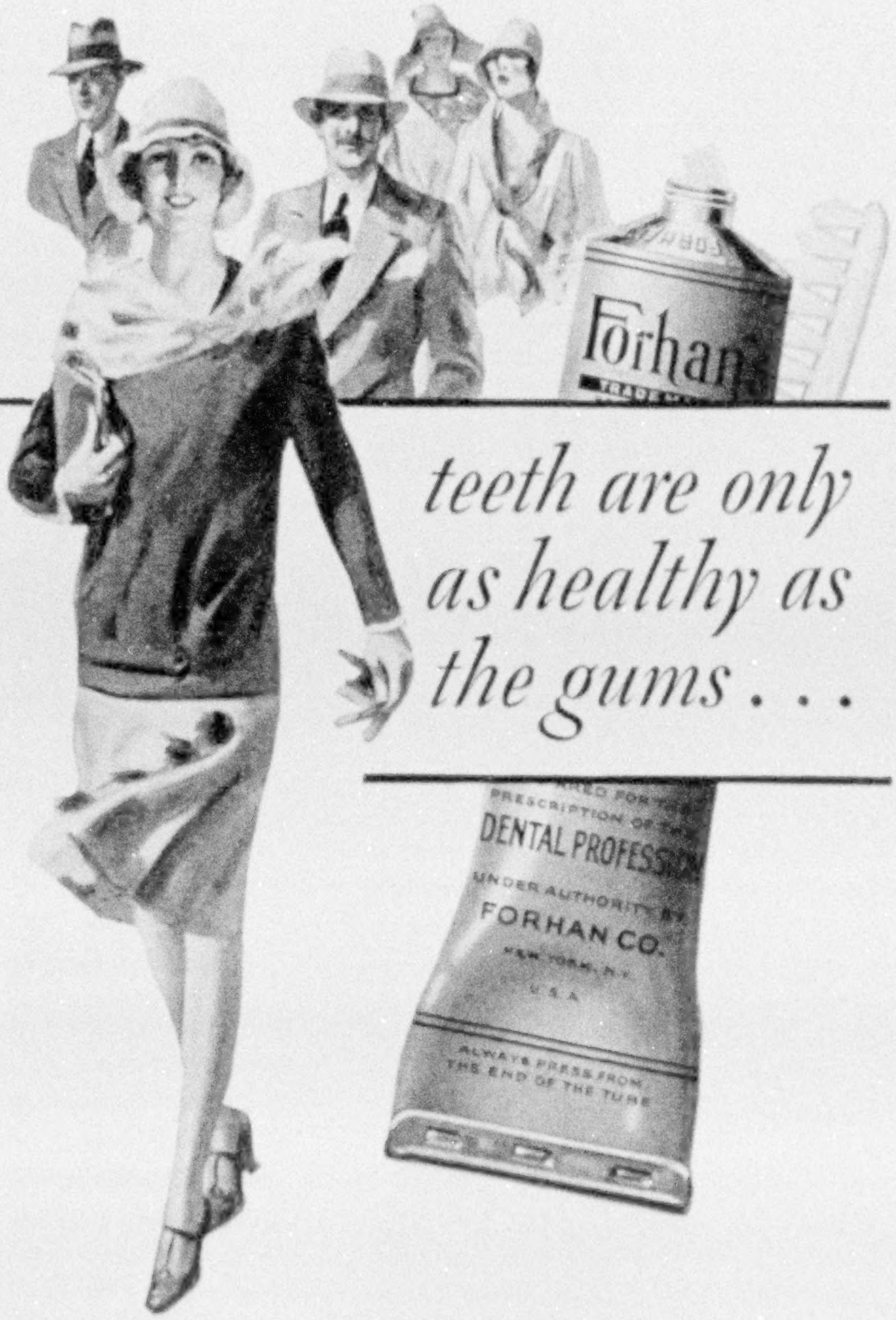
The world's largest makers of pharmaceutical and biological products

A PERSONAL NOTE

Parke, Davis & Company make a number of special products for your daily home use—with the same exacting care which marks the manufacture of Parke-Davis medicines. If you will ask your druggist about them, he will tell you that each needs no further recommendation than the simple statement: It is a Parke-Davis product.

Your smile may reveal white teeth

YET



teeth are only as healthy as the gums . . .

OF course, keep your teeth clean and gleaming white, but take care of your gums, too. For there's an insidious foe waiting patiently for an opportunity to launch its attack against the gums. It is the disease of neglect—*Pyorrhea.*

Unaware of the fact that this foe ignores the teeth and attacks the gums, 4 persons out of 5 after forty, and thousands younger (many dental clinics say the percentage is higher) sacrifice precious health. Pyorrhea takes its toll. Its poisons sweep through the system ravaging beauty and youth, and often causing a host of serious diseases.

Never Fear This Foe

These odds are unfair. For it is now a simple matter to keep teeth clean and white and at the same time help gums to resist Pyorrhea. See your dentist every six months and start using Forhan's today.

More Than a Tooth Paste

Forhan's for the Gums is far more than an ordinary tooth paste. While it cleans teeth white and removes acids which cause decay, it also helps to firm gums and keep them healthy. As you know, Pyorrhea seldom attacks healthy gums.

The formula of R. J. Forhan, D. D. S., this dentifrice is compounded with Forhan's Pyorrhea Astringent used by dentists in treating the gums. That's why it is so effective.

Get a tube of Forhan's from your druggist today. Start using it every morning and every night. Teach your children this habit, too. For it is economical health insurance. At all druggists, 35c and 60c. Forhan Company, New York.

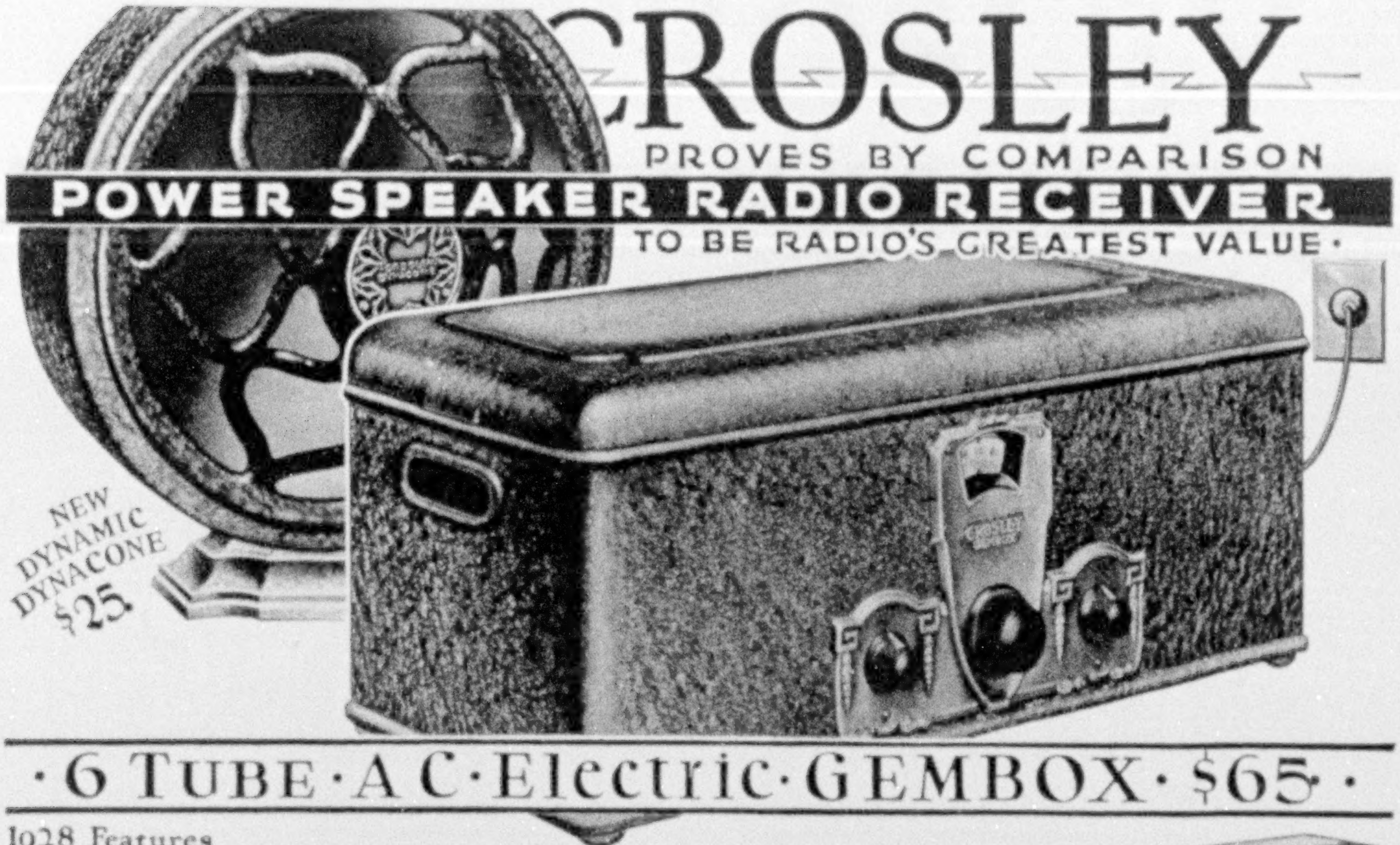
This 10 Day Test Will Convince You

The only way to keep gums firm, sound and healthy is to massage them daily. Forhan's for the Gums is designed for gum massaging. Make this 10 day test. Morning and night, before brushing your teeth with Forhan's, exercise your gums, closely following the directions in the booklet that comes with each tube . . . See how much better they look and feel!

Forhan's *for the gums*

YOUR TEETH ARE ONLY AS HEALTHY AS YOUR GUMS

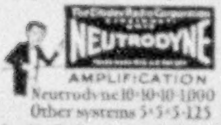
CROSLEY
PROVES BY COMPARISON
POWER SPEAKER RADIO RECEIVER
TO BE RADIO'S GREATEST VALUE·



·6 TUBE·A C·Electric·GEMBOX·$65·

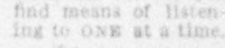
1928 Features

Few radios at ANY PRICE combine ALL these features which are essential to today's radio reception.



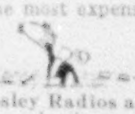
Crosley Radios tune efficiently

Crosley Neutrodyne circuit is sharp, sensitive and selective. Distant stations are easily found. Local stations tune without squealing.



Crosley Radios are shielded

Each element shielded from each other provides maximum selectivity and *is featured* in the most expensive sets.



Crosley Radios are selective

In crowded districts where many local stations fill the air you find means of listening to ONE at a time.

Crosley Radios have volume

Volume may be increased to tremendous proportions without distortion.

Crosley Radios can be softened to a whisper

A positive volume control enables operator to cut any program down to faint and scarcely audible reception.

Crosley radio sets have always been good sets. In them the public always got the utmost value. They have always been sold on a very close margin of profit in order to keep the price low. This margin does not permit extensive advertising as is possible with other radios.

Crosley radio is well advertised but not extravagantly. The growth of The Crosley Radio Corporation is due more to word of mouth by satisfied users than prodigious claims in printers' ink.

Last winter Crosley was first to announce that the place to buy radio is in the home, first to encourage demonstration in the home, first to give the public an opportunity to try, test and compare before buying. The growth of Crosley sales since that time has been phenomenal. *The first six months of 1928 showed sales almost four times greater than any preceding year, because Crosley sets demonstrated in the home in comparison with other sets immediately proved themselves to be the greatest value in the radio world.* Crosley dealers do not fear competitive demonstrations in any prospect's home—they encourage them. Satisfied customers are the greatest asset Crosley can have.

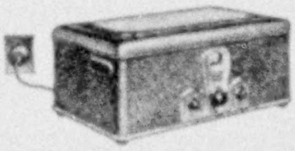
The Improved MUSICONE the fastest selling magnetic loud speaker at $15

The Crosley Dynacone—a dynamic power speaker at $25, available for all Crosley models—introduces for the FIRST time in the popular priced field power, volume, depth of tone and rich reproduction never before believed possible. Immediately Crosley radio became comparable to the highest priced receivers on the market. Crosley radio with DYNACONE gives an entirely new conception of radio.

Crosley sweeps the field! Crosley outsells ANY radio on the market today! Crosley's 5 DAY FREE TRIAL OFFER is closely imitated, but be sure you TEST and TRY a Crosley set against ANY OTHER. Such direct comparison is eye opening, for the superior Crosley receivers with this new wonder power speaker give an amazing performance.

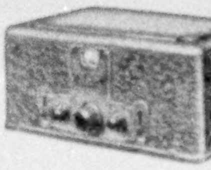
THE CROSLEY
RADIO CORP.
POWEL CROSLEY, Jr., Pres.,
Cincinnati, Ohio

Montana, Wyoming, Colorado, New Mexico and West prices slightly higher
Crosley prices do not include tubes



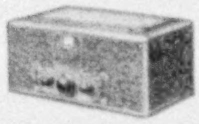
8 tube AC Electric SHOWBOX $80

Genuine neutrodyne 3 stages radio amplification, detector, 2 stages audio (last one being two 171 push-pull power tubes) and 280 rectifier.



6 tube Battery Operated BANDBOX $55

The Bandbox is the ideal radio for places where electric current is not available for AC receivers. Genuine Neutrodyne, housed in a beautiful gold highlighted case. This receiver can be converted for use from the power lines by means of a suitable power supply unit.



5 tube Dry Cell Operated BANDBOX JR., $35

Uses 199 tubes with 120 power output tube. Ideal set where recharging of storage battery is inconvenient. Uses type D Musicone for speaker.

When college stars are shining...

"You're *there* with a Crosley"..

The Crosley Radio
Corporation
Cincinnati, Ohio Dept. 74

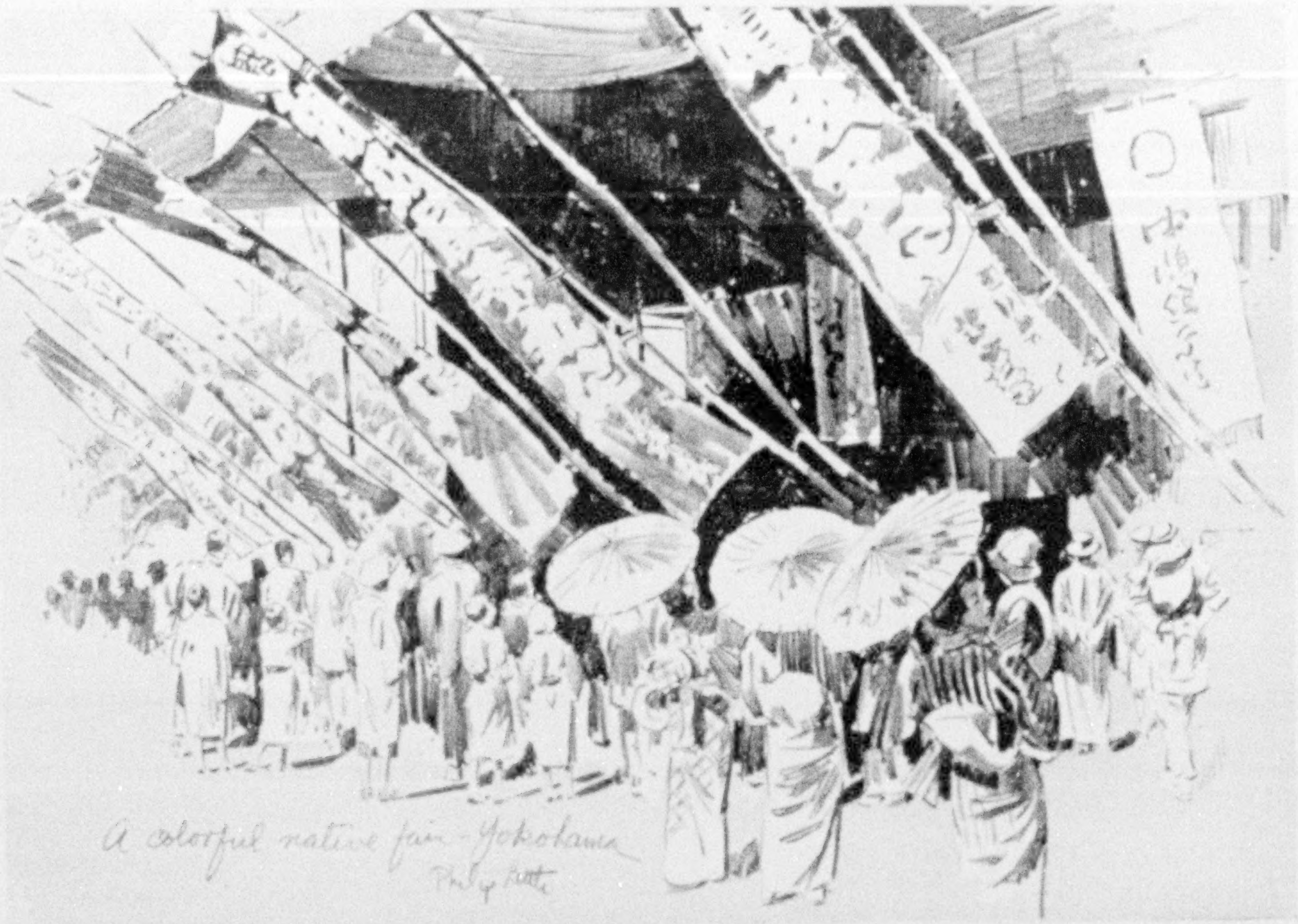
Please send me literature about your new radio receiver and the new wonderful DYNACONE.

AC Radio .... Battery Operated Radio .... Dynacone ....

DC Radio .... 5 DAY FREE TRIAL IN MY HOME ....

Name ....

Address ....



A colorful native fair – Yokohama

Philip Little

Like a Private Cruise

Round the World

Go Round the World as you please. Make your own itinerary. Stop where you like as long as you like.

There are twenty-two ports. Visit each during the ship's stay or stopover and visit it at your leisure. Like a cruise on a private yacht.

From Los Angeles, San Francisco, Honolulu, Yokohama, Kobe, Shanghai and Hong Kong, a liner sails every week. From Manila, Singapore, Penang, Colombo, Suez, Port Said, Alexandria, Naples, Genoa, Marseilles there are fortnightly sailings.

Your ticket permits two years for the circuit of the world. And for as little as $1250 you may go Round the World in this leisurely way with your transportation, meals and accommodations aboard the ship included in the fare.

Magnificent President Liners. Spacious decks, enclosed in glass. Outside rooms with beds, not berths. Large public rooms. A world famous cuisine

Every fortnight there is a sailing of an American Mail Liner from Seattle for the Orient and Round the World.

Fortnightly sailings from New York for Havana, Panama, California and the Orient. Fortnightly sailings from Naples, Genoa and Marseilles for New York.

A similar service returning from the Orient to Seattle, San Francisco and Los Angeles.

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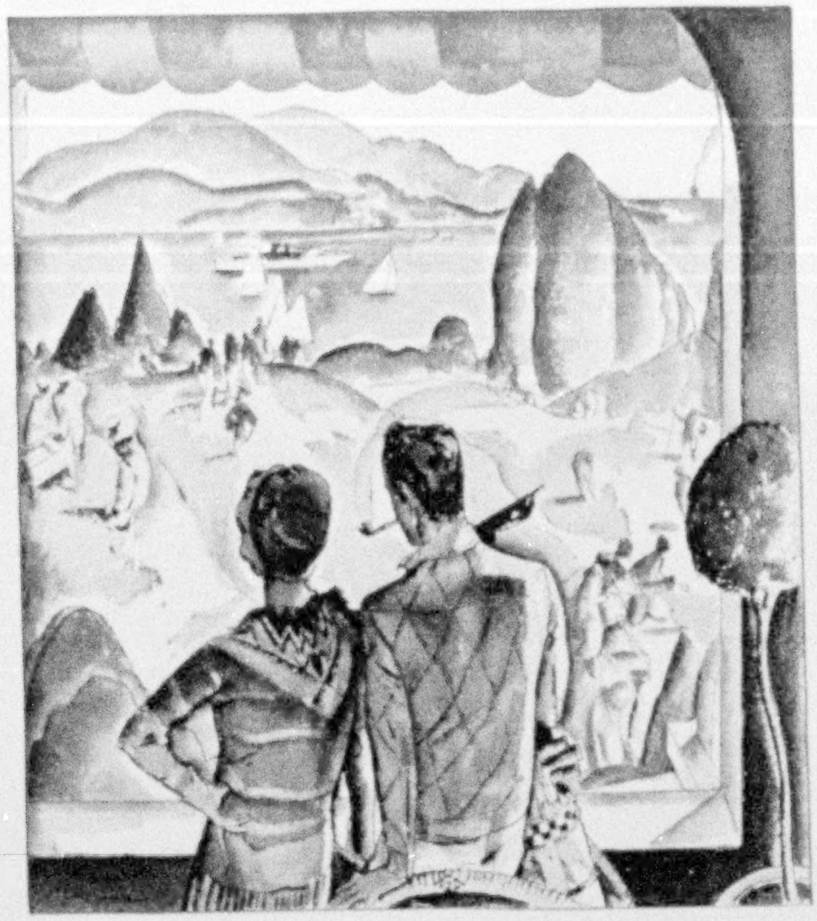
ROBERT DOLLAR BLDG., SAN FRANCISCO

110 SOUTH DEARBORN ST., CHICAGO, ILL.
DIME BANK BUILDING, DETROIT
1005 CONNECTICUT, N. W., WASH., D. C.
152 BROADWAY, PORTLAND, OREGON
21 PIAZZA DEL POPOLO, ROME, ITALY
11 BIS RUE SCRIBE, PARIS, FRANCE
22 BILLITER STREET, E. C. 3, LONDON
4TH AT UNIVERSITY, SEATTLE, WASH.



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Moreover, it is the business, industrial and commercial headquarters of the West. Its port tonnage is America's second greatest. Its all-year golf courses, tennis courts, parks, yacht harbors and playfields reflect the outdoor spirit of a people who work when they work, play when they play, and enjoy exceptionally high per-capita prosperity. Send for your copy of book described below.

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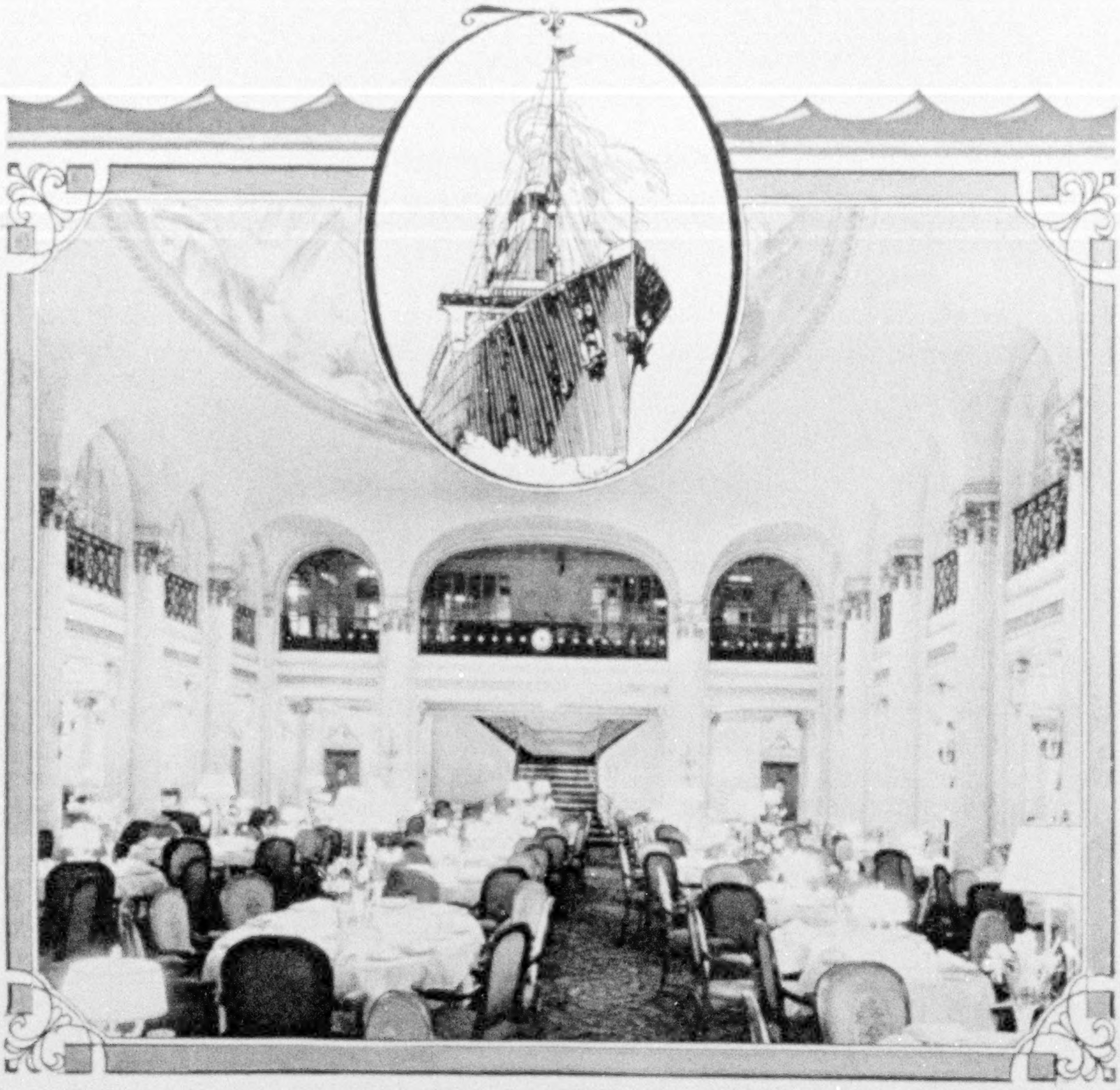

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"Go to EUROPE now"

YOU'VE heard the midsummer traveler's lament: "Boat crowded—best accommodations gone—trains in Europe jammed." But the "travel-wise" will tell you the joys of off-season trips: Golf, or shooting, or riding to hounds—the fall's the time for all that! Enjoy them *now*, as the European does.

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To sail on a United States Liner is a privilege. Consider some of the advantages: a steadier, swifter crossing; a more delicious cuisine; pleasanter fellow travelers; courteous stewards who serve you more promptly because they understand your American likes and dislikes.

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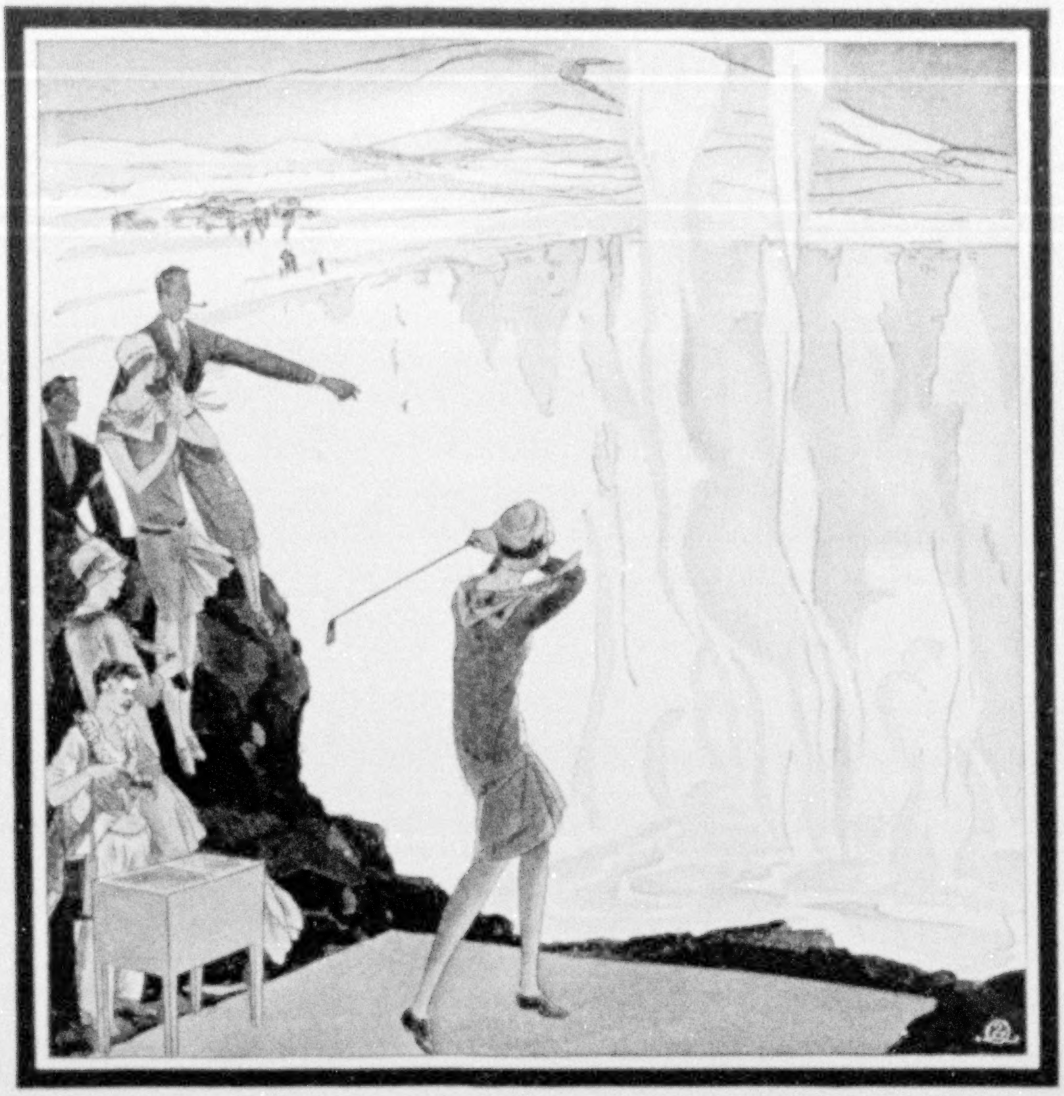

Make **HAWAII'S** *world famed Hole-in-One this winter!*

Golf your way around Hawaii's lovely islands this winter—and when you play the Volcano course, step to the 19th tee at the very brink of Kilauea's steaming crater and send a bright new ball streaking out into the world's most famous "hole-in-one"!

You can play on eighteen scenic courses in Hawaii. But then, there's the outrigger-canoeing and surfboarding at Waikiki—the morning swim in gentle surf that's cool in summer and warm in winter—the days of loafing on a coral beach.

And there are little cruises, too, that coax you to sightseeing voyages among the islands of Maui, Oahu, Kauai and Hawaii. Game-fishing expeditions in a Japanese sampan. Shopping in quaint Oriental and Hawaiian bazaars. Motor trips to old Hawaiian villages, forests of giant tree-ferns, stupendous canyons and idyllic beaches. Magical evenings when the moonlight dances on the palms, and Hawaiian *hula* girls portray the legends of an ancient race.

Stay long enough to see it all! Hawaii is only 2,000 miles (four to six day's delightful voyage) from the Pacific Coast; and all-inclusive tours range upward from $400 to $500 including all steamer fares, hotels and sightseeing, for a month's trip with two or three weeks ashore. De luxe accommodations, also, that are equal to those of Europe's most renowned resorts.

Your local railroad or travel agent knows exactly how to plan your trip via Los Angeles, San Francisco, Seattle or Vancouver. No passports or formalities—Hawaii is U. S. A.

HAWAII

The
WORLD'S
Enchanted
Island
Playground

LASSCO LINE from LOS ANGELES

Sailings every Saturday over the delightful Southern route on Lassco luxury liners and popular cabin cruisers. De luxe accommodations; also economy tours on all-expense tickets. Ask at any authorized travel agency or at Los Angeles Steamship Company offices: 730 South Broadway, Los Angeles; 505 Fifth Avenue, New York City; 140 South Dearborn, Chicago; 685 Market Street, San Francisco; 217 East Broadway, San Diego, California.

MATSON LINE from SAN FRANCISCO

Sailings every Wednesday and every other Saturday over smooth seas on fast de luxe liners; also popular one-class steamers. Novel entertainment features—glorious fun. Attractive all-expense Island tours. Regular sailings also from Seattle. See your travel agency or Matson Line: 215 Market St., San Francisco; 535 Fifth Ave., New York; 140 So. Dearborn, Chicago; 1805 Elm St., Dallas, Tex.; 510 W. Sixth St., Los Angeles; 814 Second Ave., Seattle; 82½ Fourth St., Portland, Ore.

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MEDITERRANEAN

THE beautiful Mediterranean, most famous sea in history, surrounded on every side with glorious landmarks of the past, bids you enrich your life with the contemplation of her treasures.

James Boring's Fourth Annual Mediterranean Cruise sails from New York Feb. 14th, 1929, on the specially chartered White Star Line S.S. "Calgaric". The entire cruise is under one American management. All travel details will be taken care of for you, leaving you free to enjoy 68 delightful days, with stops at 23 ports and four principal islands. Rates, first class only, $740 to $1675, cover every necessary expense, including stop-over steamship tickets.

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James Boring's Fourth Cruise to the West Indies and Panama sails from New York Jan. 23rd, 1929. 19 days—$275 up.

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MAGIC names to those who know Sweden and its fascinating beauty. You too should visit these lovely provinces, for Sweden is today recognized by experienced travelers as one of the most delightful of all European countries. Plan your next trip abroad by way of Sweden, visit Dalecarlia and Vermland, see Stockholm, the "Venice of the North," and carry home life-long memories of an enchanting holiday.

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SWEDEN

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The Gateway to
SWEDEN - NORWAY - DENMARK
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ONLY ships to Scandinavia carrying passengers in First Class. Scandinavia's largest and most modern passenger ships—steamless—smokeless, spotless—motor-driven—heated, ventilated and served electrically—unexcelled in elegance and comfort—offering the best obtainable in modern ocean travel.

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Duration of each Cruise 17 Days
From NEW YORK *January 19th, 1929*
From NEW YORK *February 9th, 1929*
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Swedish American Line, 21 State Street, N.Y.

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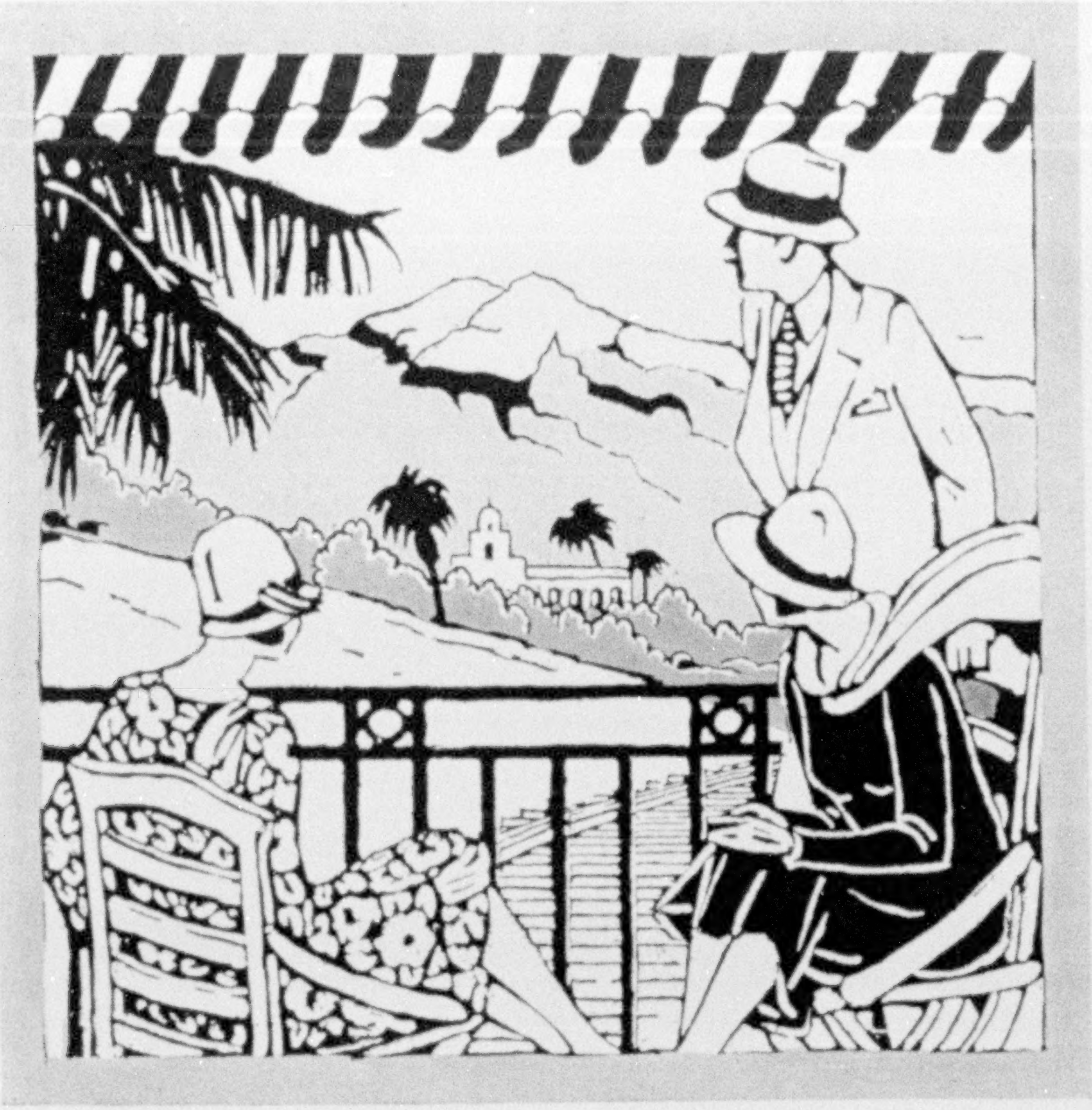

. . featuring *the extras* that make travelling a luxurious diversion . . a restful adventure

Service, speed, courtesy, cuisine . . you can take them for granted on the Los Angeles Limited.

There is something more that attracts famous people, the knowing ones, to choose this train year after year. Maybe it's an atmosphere of refinement and luxury, or the scenic grandeur along the smoothest roadbed in the world that calls them.

To our many old patrons . . we await you eager to make your next journey even more enjoyable than the last.

To all travellers to California . . take the Los Angeles Limited and we predict that you too will become one of its many ardent admirers.

Train features: Barber, valet, bath, maid, manicure. Observation-club cars, dining cars serving meals that appeal, every class of standard Pullman car accommodations . . all equipment of the most modern and desirable type. 63 hours en route; leaves Chicago at 8:10 p. m. daily; $10 extra fare.

Seven other fine trains to California from Chicago and St. Louis

Including the 63-hour extra fare San Francisco Overland Limited; Gold Coast Limited; Continental Limited; Pacific Limited; Pacific Coast Limited.

Here's a new interesting inexpensive side trip en route—Death Valley, California

See its magnificent, mysterious grandeur by comfortable rail—motor-bus tours. Season starts about November 1st.

For booklets describing California, Death Valley and Union Pacific service:

Address nearest representative or General Passenger Agent
Dept. 248, at Omaha, Nebraska

UNION PACIFIC
THE OVERLAND ROUTE

Hotel keeping is, of course, a business. But how can it be a successful business unless every guest thoroughly enjoys every minute of his stay?

We believe in that principle but—even more important—we all genuinely enjoy this business we're in. So we've created for you here the surroundings and atmosphere of a fine private club. European-trained chefs prepare food that has become famous. Bedrooms are luxurious and artistic and really pleasant places to be. And from the moment we bid you welcome to the moment we say goodbye, everyone here is out to see to it that you shall be comfortable and that your wants shall be courteously cared for almost before they are expressed.

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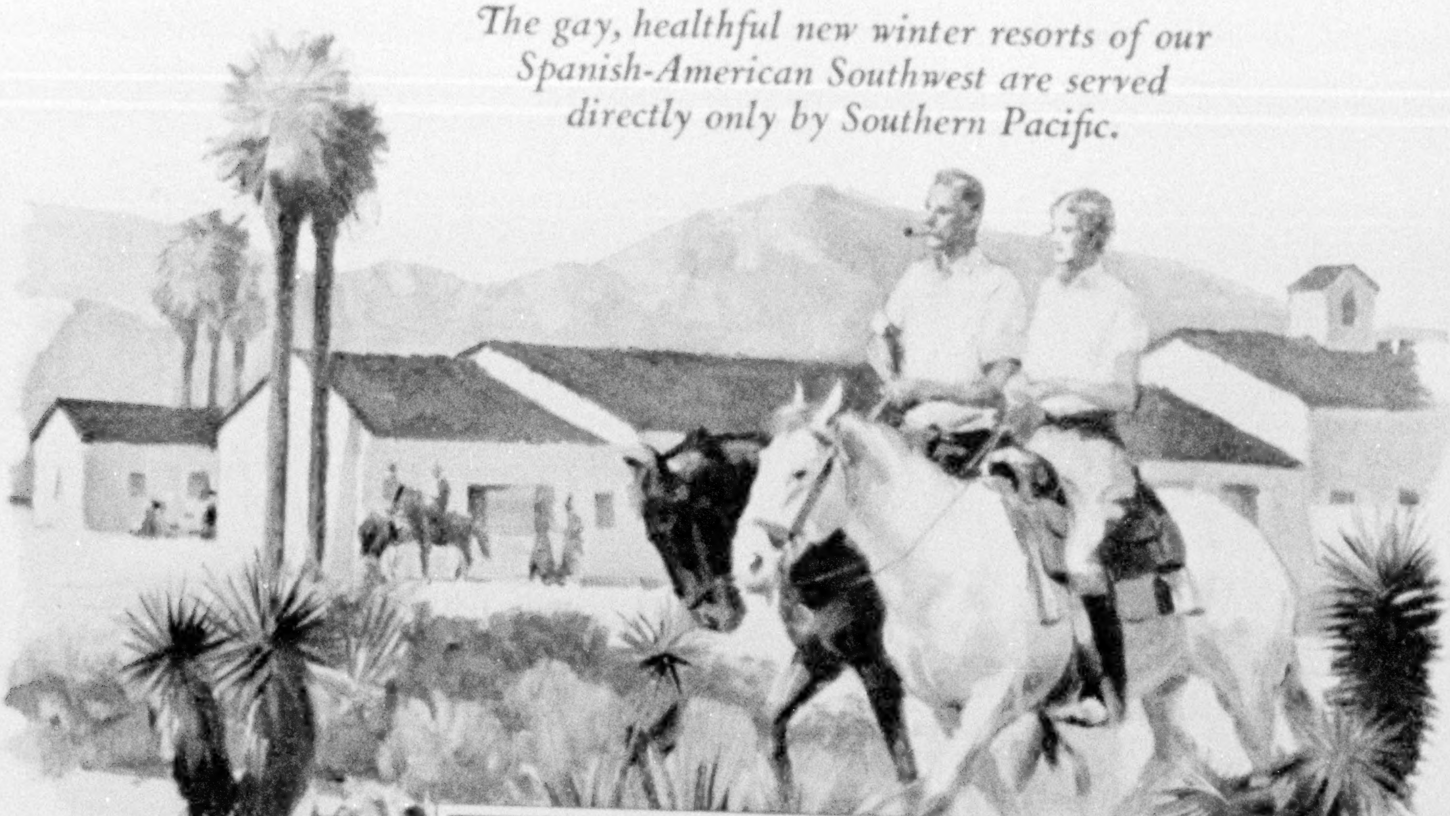
America hears the desert's call

The gay, healthful new winter resorts of our Spanish-American Southwest are served directly only by Southern Pacific.



Five through trains daily

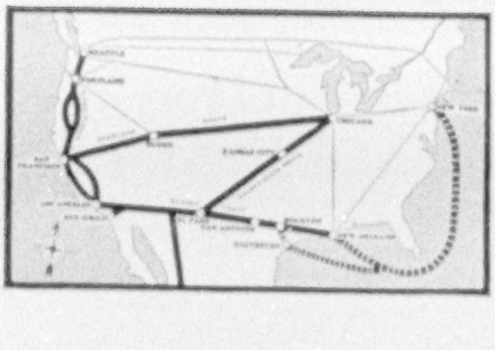
Something is happening on the desert of our Spanish-American Southwest in California and Arizona. Leaders in America's social and business life are building winter homes amid bristling yucca plants and fantastic cactus, on the sides of weird, chocolate-and-ocher mountains. Palm Springs, on the western (California) side of the Colorado River, is the Mecca of this newest tide of fashionable travel. Charming hotels and hacienda resorts have sprung up. Indio, La Quinta and Biskra, California, and Chandler, Phoenix, Nogales and Tucson in southern Arizona, are other centers in this romantic land of great winter moons and bright stars.

Here winter is delightful. Noonday's highest temperature averages 81°; nights average 45° and invite sleep. Visitors spend memorable days on horseback, or at golf, swimming, tennis, dancing, or bathing in the day-long sunshine.

And all over Southern Arizona are comfortable ranchos where the more energetic can enjoy the dash, color and old-time spirit of the hard-riding, calf-branding, bronco-busting West. A unique outing!

Southern Pacific's Golden State Route (Chicago to Los Angeles and San Diego) and Sunset Route (New York and New Orleans to Los Angeles and San Francisco) directly and exclusively serve this spirited region. Choice of two other great Southern Pacific routes broadens your return journey. You can see the whole Pacific Coast. No other railroad offers this choice of routes. Stop over anywhere.

By all means send your name and address now to E. W. Clapp, traffic manager, Department C-21, 310 Michigan Boulevard, Chicago, for free illustrated books, "*Desert Resorts of Southern California*", "*Guest Ranches of Arizona*", and "*How Best to See the Pacific Coast*".



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GOLDEN STATE LIMITED
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¶ Other fine fast trains at your service via Golden State Route—the direct low altitude way to Southern California.

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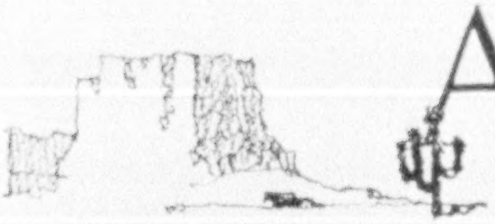

All winter long!

Outdoor joys of Spring in Southern California

The lure of the Winter Desert—and snow-crowned Mt. Jacinto.

WORDS only suggest the fascination of this wonder-winter-land of Southern California with its mellow sunshine, gorgeous flowers, orange trees golden with ripening fruit—and close by snow-capped mountains!

Pictures tell more. If you'll mail the coupon for a new photographic text book, "Southern California through the Camera," you'll name a hundred reasons why you should spend next winter in this astounding country where climate, scenery, novel sights and contrasts are unequalled.

Think of days of gentle, sub-tropic sun-warmth; of motoring by vast orange groves or playing golf on any one of 65 *ever*green courses! Realize the health betterment such a climate-change means to old and young alike!

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They say that guests read in bed, 'round midnight, at the Book-Cadillac Hotel in Detroit. The rooms are high-up and quiet and cool little winds blow from the lakes to flutter the curtains and urge to sleep; and pillows are great and soft here and sheets are cool and restful and blankets are warm to pull-up 'round chins and ears and you snuggle in early and breathe long sighs and you smile and — read in bed. ❧ ❧ ❧ Old travelers, sage and sophisticated, say that Book-Cadillac is one of world's great abiding places. They tell of its kindly, welcoming manner; they talk of its young men and of their courteous and swift and silent service; they tell of savoury foods, incomparable; but *always* they tell of reading in a bed that is soft and downy and sleepy as a winter's night. See you soon. *Good night.*

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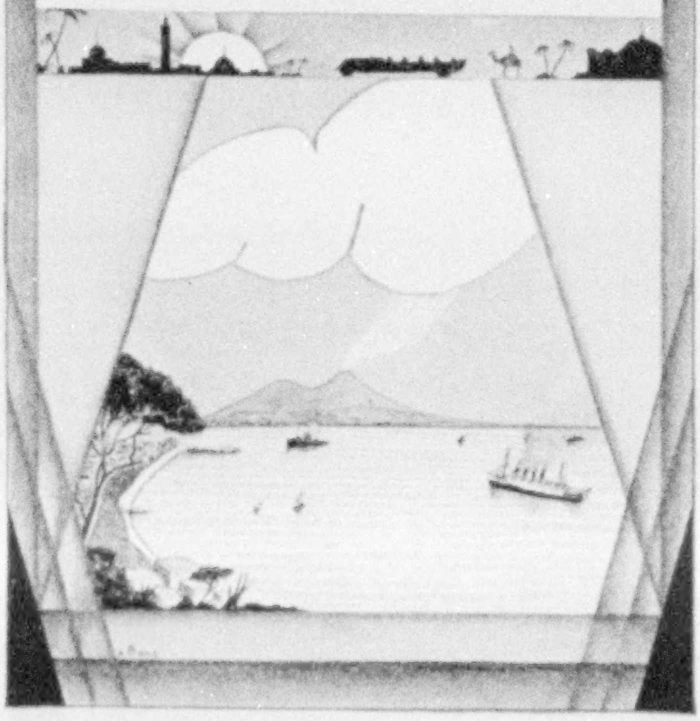
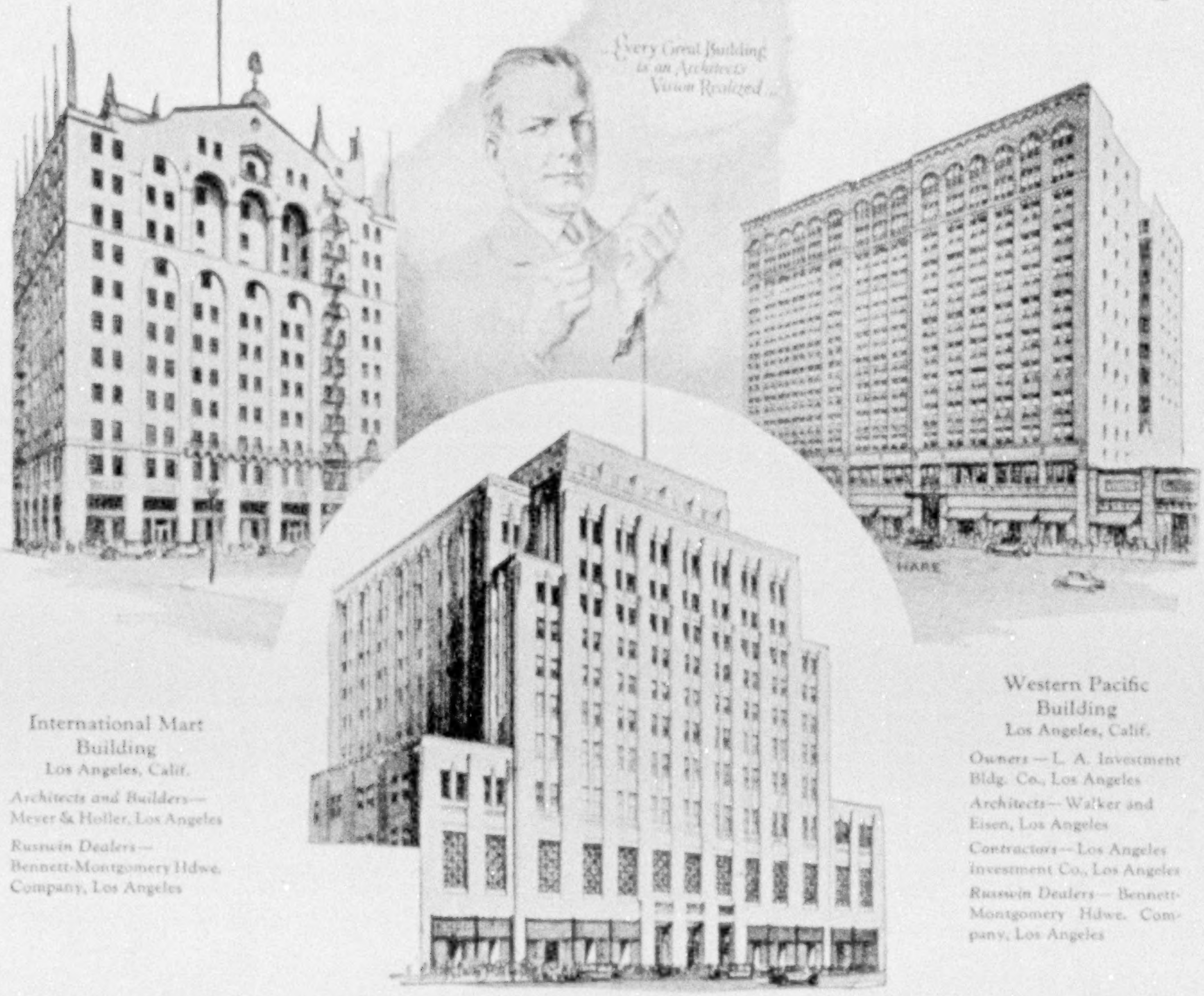
Information from any authorized French Line Agent or write direct to 19 State St., New York City



RUSSWIN *in* LOS ANGELES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Architects—Walker and
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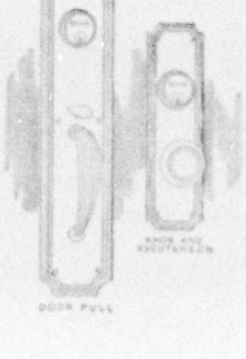
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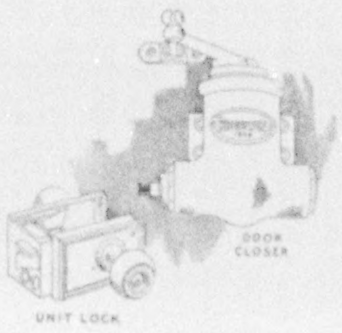
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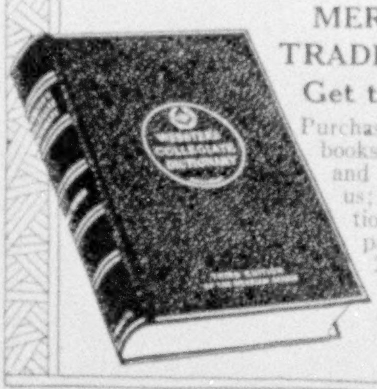

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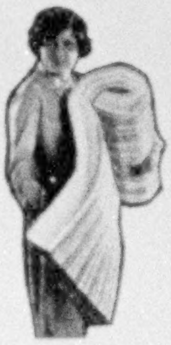

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The mattress that makes you sleep relaxed is called "Spring-Air." Francis Karr spent forty-five years in perfecting it. Leading up to it are more than thirty patents granted to this dean of bedding experts. Now that Francis Karr has achieved his goal, the benefits are yours to enjoy—and at a great saving because you buy direct from The Karr Company.

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How can we on this page tell you about Spring-Air? It is so different—so far advanced in all its features. Not alone is Spring-Air supreme in comfort, but never before has any mattress been so easy to handle, so light in weight, so flexible or durable, so sanitary. Let the free booklet, "Sleeping Relaxed," explain Spring-Air to you. Send for it today.

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To you, Spring-Air is new. But Spring-Air has had its test by America's foremost sleep critics—In two years, more than 600 leading hospitals and hotels have purchased Spring-Air and enthusiastically approve it. From them have come hundreds of letters like this one from Asa Bacon, Superintendent of Presbyterian Hospital, Chicago; Treasurer and past president of the American Hospital Association: *"Spring-Air mattresses are giving such wonderful satisfaction that I am equipping our entire hospital with them as rapidly as possible. Our patients as well as the doctors and nurses are perfectly delighted with these beds."*

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in tomato sauce with cheese

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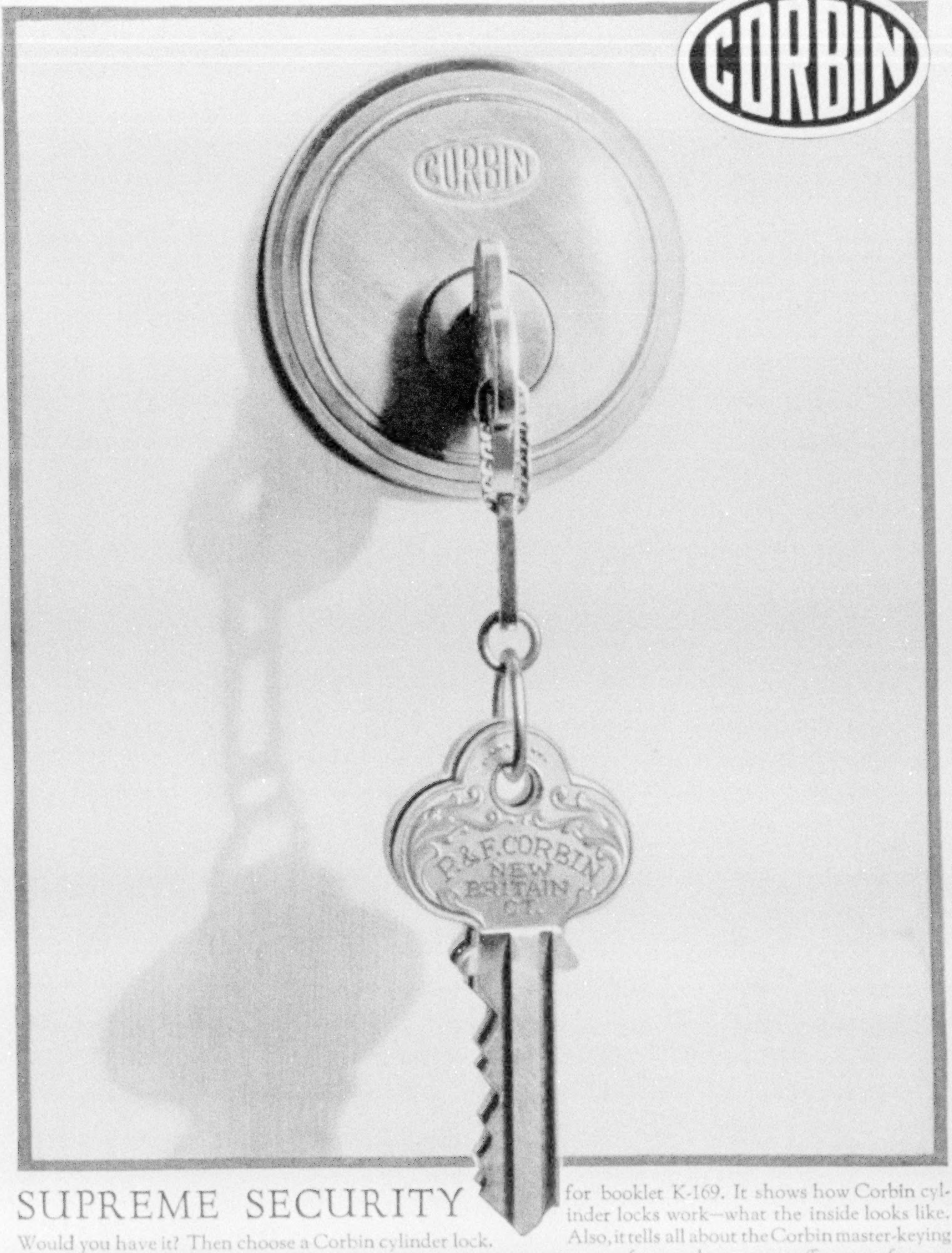

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Not only are Chamberlin Weather Strips an insignificant investment when compared to the cost of your home—but a comfort investment that is returned to you many times over in the fuel that you save. This is easy to understand when you stop to realize that windows and doors are by far a building's weakest points. ¶ Around each unweatherstripped window is a crack equivalent to a hole the size of a brick—a clearance that must be there to permit them to open and close. Here you have a constant source of air inleakage, causing from one to two complete air changes per hour and a temperature that is uncomfortable and difficult to regulate. Under such conditions you burn from 20% to 40% more fuel than is necessary. ¶ Chamberlin Weather Strips will remedy this condition. It is obvious that it is false economy to choose anything less than the best weatherstripping money can buy—and for a possible slight difference in price, you cannot afford to be without Chamberlin protection.

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Manufacturers and Installers of Metal Weather Strips and Roll Screens
Over 100 Sales-Installation Branches throughout the United States

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"SINCE 1893-THE STANDARD"

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Give me some idea how much it will cost me to Chamberlin Weather Strip my home,
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Send me some Chamberlin literature, too.
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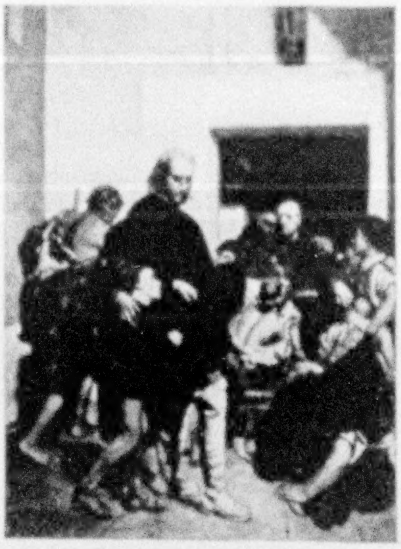

Christopher
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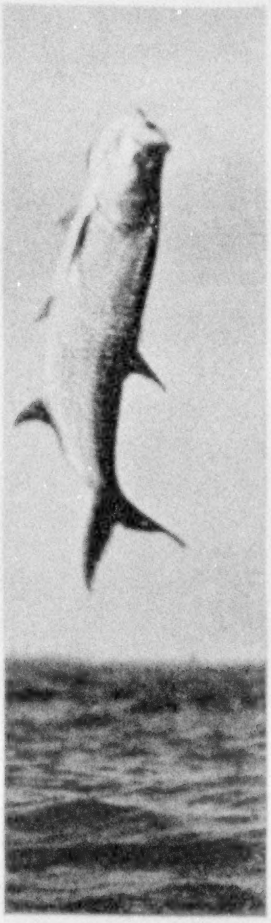

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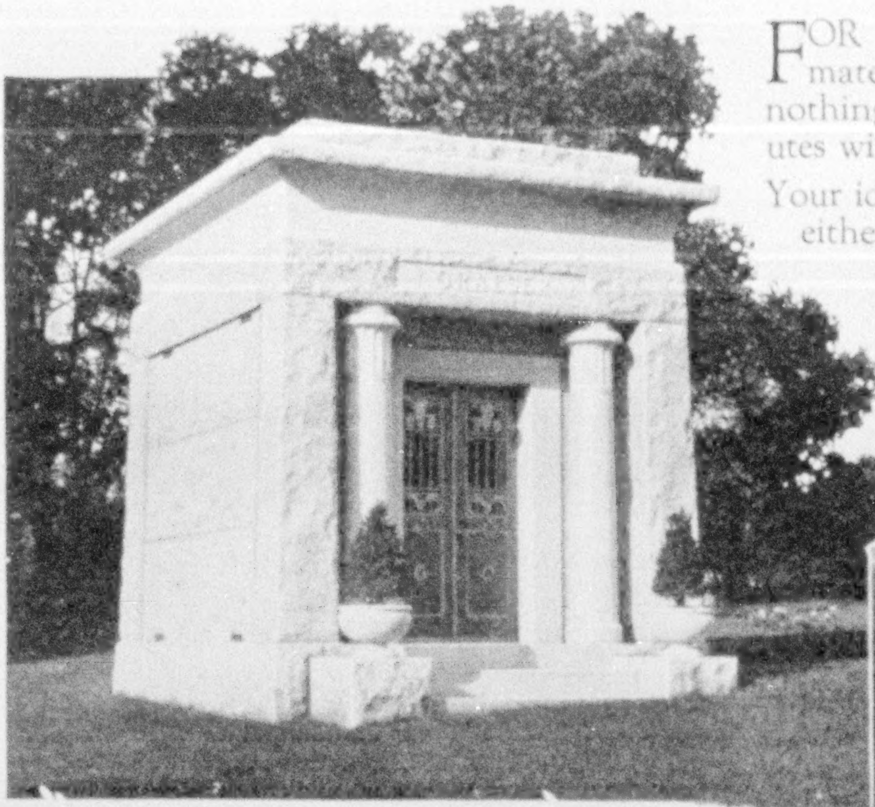

Above: The Graeser Mausoleum is in Riverside Cemetery, Rochester, N. Y.

At right: The Rice tribute was erected for the family of Franklin Rice, Dayton, Ohio.

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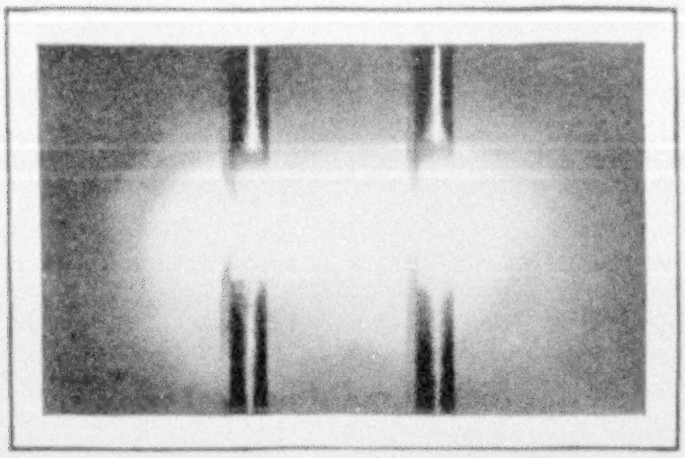

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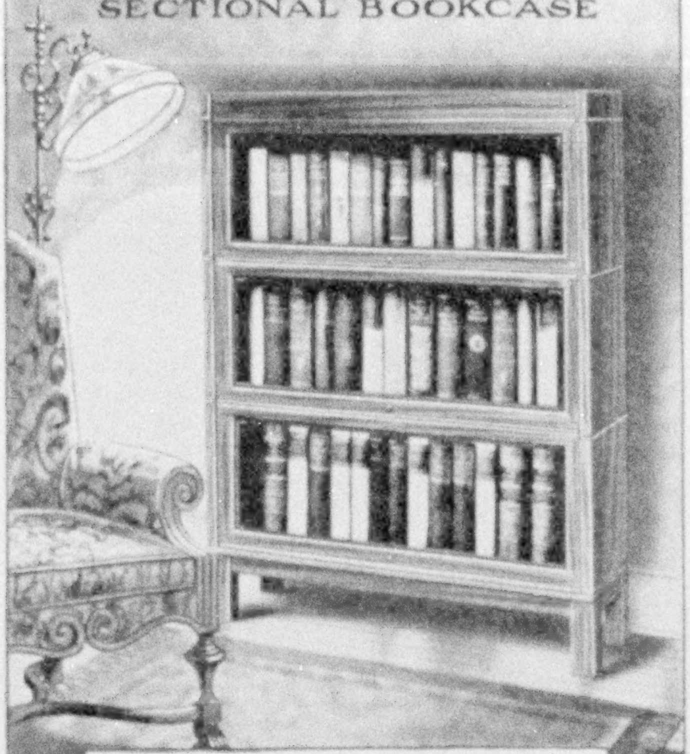

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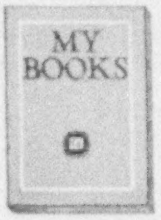

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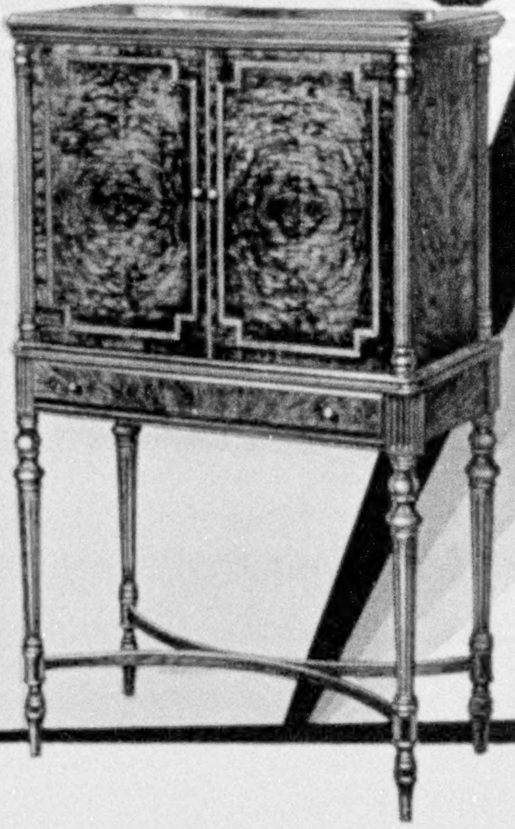

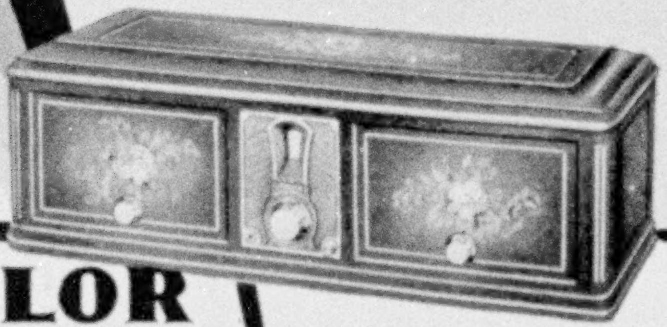

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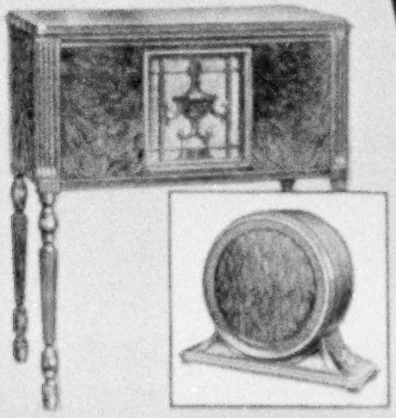

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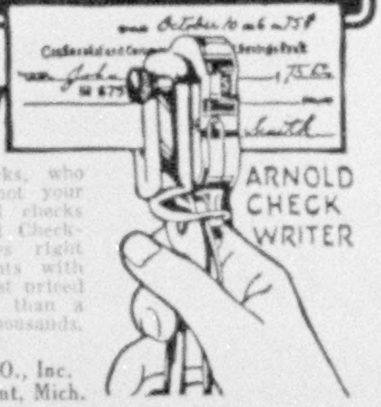

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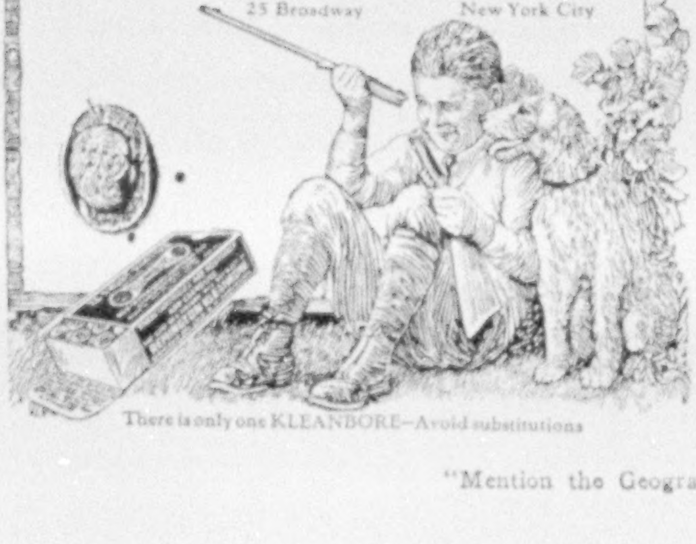

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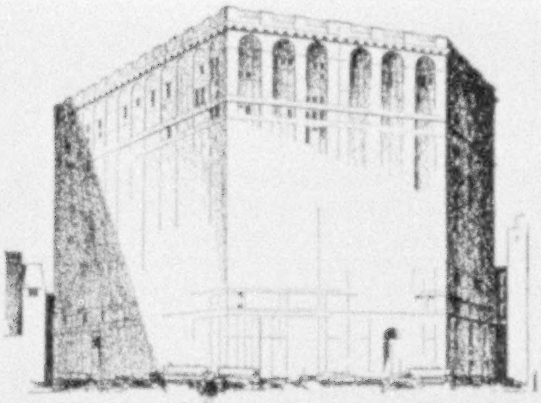

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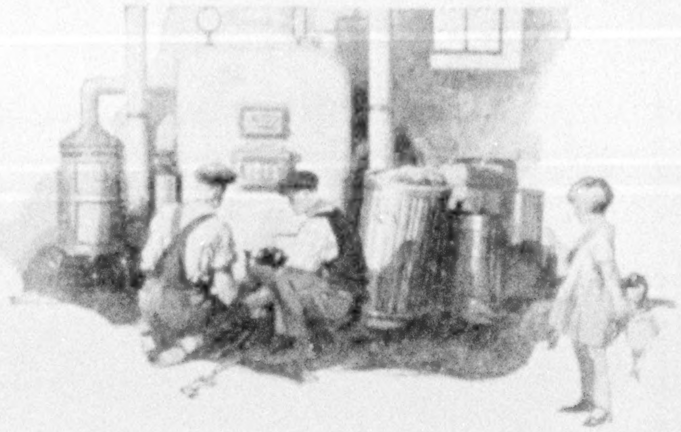

It is never too late to change to oil heat

Perhaps the approach of cold weather has brought back memories of past heating troubles. You may be deciding right now that you don't care to go through another winter without oil heating.

It is not too late to make the change—your heating system can be converted to oil at any time. Your dealer will take but a few hours to substitute care-free oil heat for the bondage of coal-shovel and ash-can.

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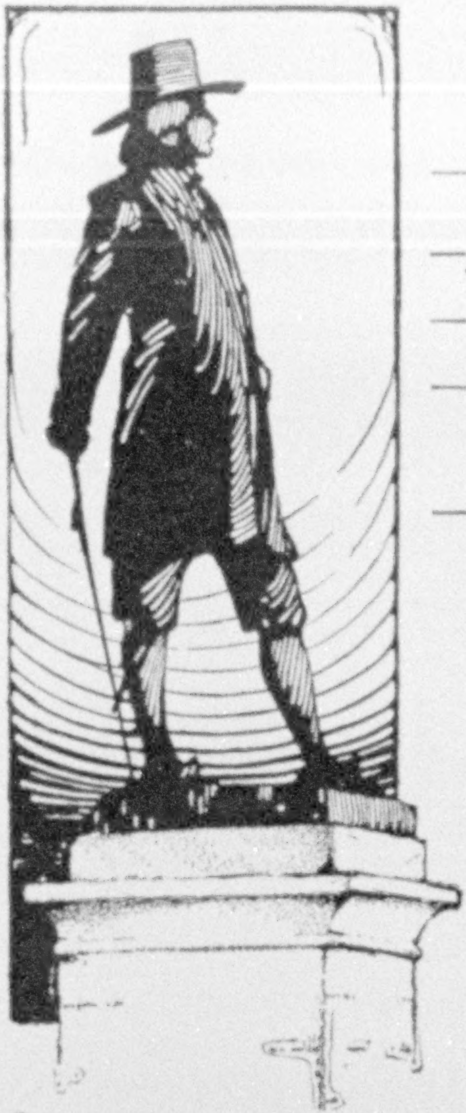

Where?

—Jan van Riebeek stands guard over the city he founded

—Kaffir rickshaw boys paint white socks on their brown legs

—Yellow elephant tusks come down to the waiting ships

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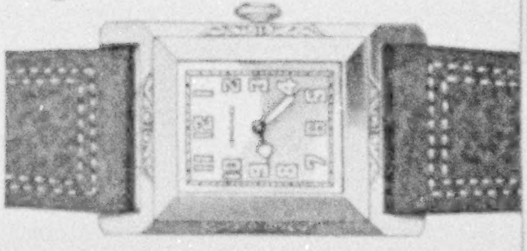

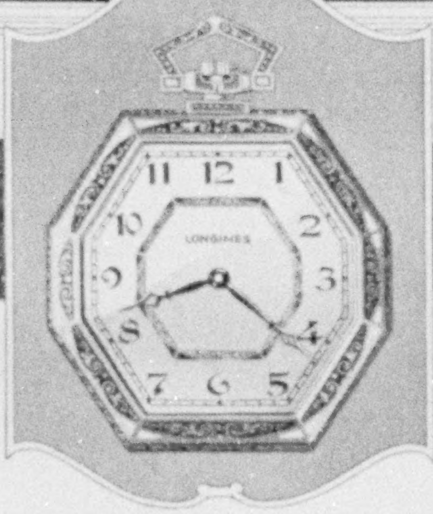

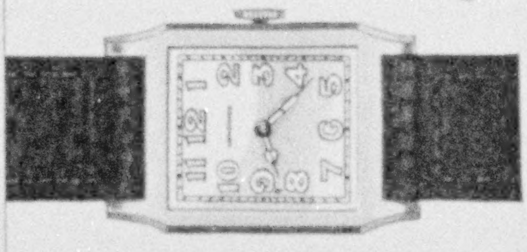

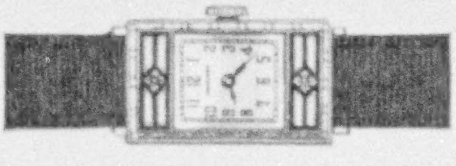

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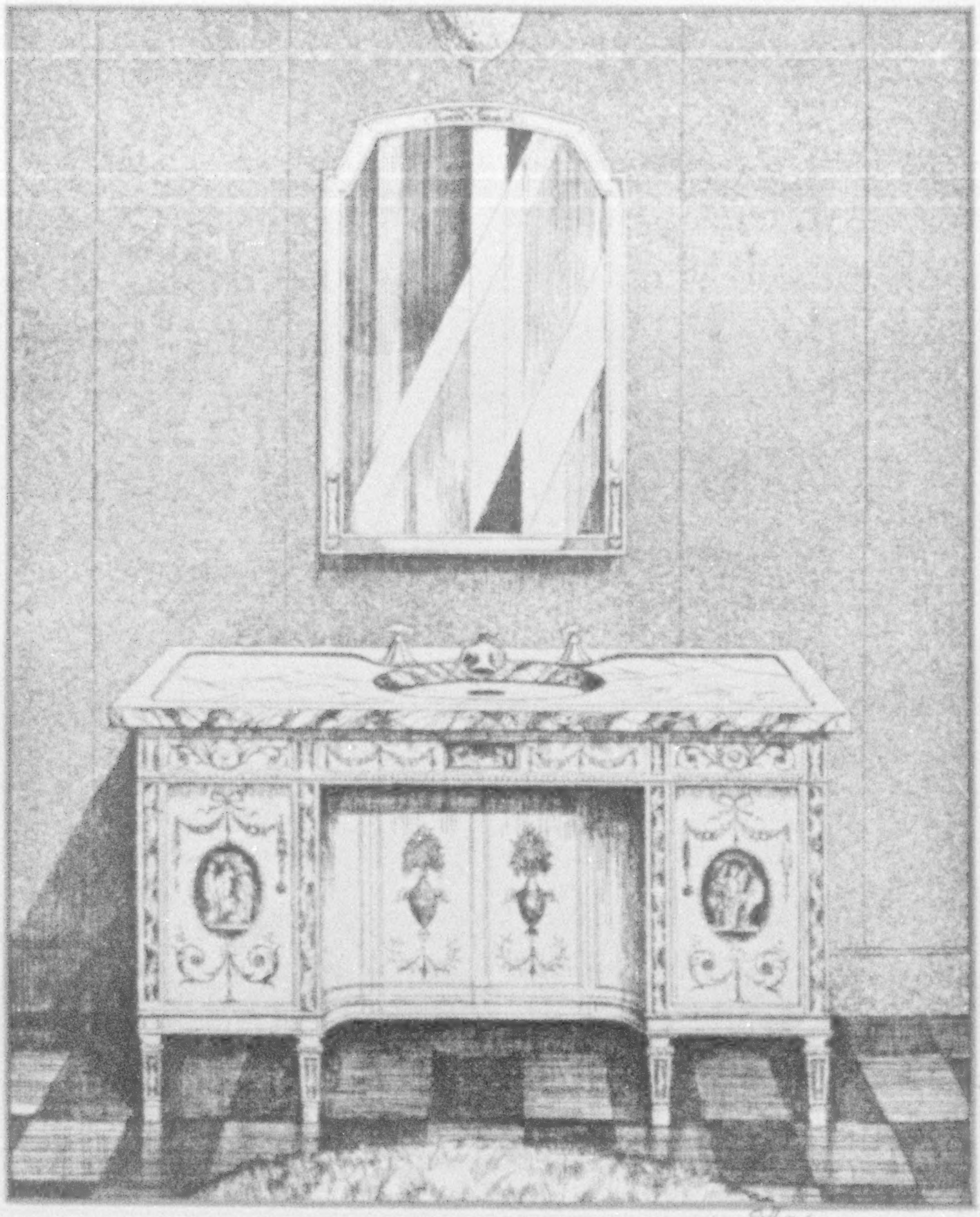

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